



# **STIC Search Report**

**EIC 1700**

**STIC Database Tracking Number: 190809**

**TO: Dawn Garrett**  
**Location: REM 10C79**  
**Art Unit : 1774**  
**May 25, 2006**

**Case Serial Number: 10/518713**

**From: Usha Shrestha**  
**Location: EIC 1700**  
**REMSSEN 4B28**  
**Phone: 571/272-3519**  
**usha.shrestha@uspto.gov**

## **Search Notes**

**SEARCH REQUEST FORM****Scientific and Technical Information Center**

Requester's Full Name: DAWN GARRETT Examiner #: 76107 Date: 5/22/2006  
 Art Unit: 1774 Phone Number 302-1523 Serial Number: 10/518,713  
 Mail Box and Bldg/Room Location: Remain 10C79 Results Format Preferred (circle): PAPER DISK E-MAIL

**If more than one search is submitted, please prioritize searches in order of need.**

\*\*\*\*\*

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Polymer and polymeric luminescent element  
comprising the same  
 Inventors (please provide full names): \_\_\_\_\_  
(see attached Bil. data sheet)  
 Earliest Priority Filing Date: \_\_\_\_\_

*\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

*Please search a polymer according to  
 claim 1  
 (do not limit by utility)*

*Thank you.*

SCIENTIFIC REFERENCE BR  
 Sci & Tech Inf. Cntr.

MAY 23 2006

Pat. & T.M. Office

**STAFF USE ONLY**

Searcher: WJL  
 Searcher Phone #: \_\_\_\_\_  
 Searcher Location: \_\_\_\_\_  
 Date Searcher Picked Up: 5/25/06  
 Date Completed: 5/25/06  
 Searcher Prep & Review Time: 30  
 Clerical Prep Time: 30  
 Online Time: 60

**Type of Search**

NA Sequence (#) \_\_\_\_\_  
 AA Sequence (#) \_\_\_\_\_  
 Structure (#) 1  
 Bibliographic \_\_\_\_\_  
 Litigation \_\_\_\_\_  
 Fulltext \_\_\_\_\_  
 Patent Family \_\_\_\_\_  
 Other \_\_\_\_\_

**Vendors and cost where applicable**

STN 670.99  
 Dialog \_\_\_\_\_  
 Questel/Orbit \_\_\_\_\_  
 Dr.Link \_\_\_\_\_  
 Lexis/Nexis \_\_\_\_\_  
 Sequence Systems \_\_\_\_\_  
 WWW/Internet \_\_\_\_\_  
 Other (specify) \_\_\_\_\_

=> fil reg

FILE 'REGISTRY' ENTERED AT 15:06:18 ON 25 MAY 2006

=> d his

FILE 'REGISTRY' ENTERED AT 15:02:28 ON 25 MAY 2006

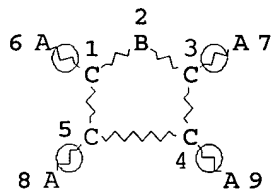
L1 STR  
L2 SCR 1847  
L3 237 SEA FILE=REGISTRY SSS FUL L1 NOT L2  
L4 3 S L3 AND PMS/CI

FILE 'HCAPLUS' ENTERED AT 15:04:12 ON 25 MAY 2006

L5 3 S L4  
L6 103 S L3  
L7 100 S L6 NOT L5  
L8 19 S L7 AND P/DT  
L9 11 S L8 AND (1907-2002)/PRY,AY  
L10 81 S L7 NOT L8  
L11 66 S L10 NOT (2003-2006)/PY  
L12 77 S L9 OR L11

=> d que 15

L1 STR



NODE ATTRIBUTES:

NSPEC IS R AT 6  
NSPEC IS R AT 7  
NSPEC IS R AT 8  
NSPEC IS R AT 9  
DEFAULT MLEVEL IS ATOM  
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 9

STEREO ATTRIBUTES: NONE

L2 SCR 1847  
L3 237 SEA FILE=REGISTRY SSS FUL L1 NOT L2  
L4 3 SEA FILE=REGISTRY ABB=ON PLU=ON L3 AND PMS/CI  
L5 3 SEA FILE=HCAPLUS ABB=ON PLU=ON L4

=> fil hcap

FILE 'HCAPLUS' ENTERED AT 15:06:36 ON 25 MAY 2006

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L5 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2004:125112 HCAPLUS

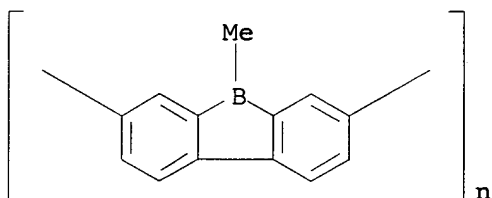
DOCUMENT NUMBER: 140:322032  
 TITLE: Electronic, Structural, and Optical Properties of Conjugated Polymers Based on Carbazole, Fluorene, and Borafluorene  
 AUTHOR(S): Briere, Jean-Francois; Cote, Michel  
 CORPORATE SOURCE: Departement de Physique et Regroupement Quebecois sur les Materiaux de Pointe (RQMP), Universite de Montreal, Montreal, QC, H3C 3J7, Can.  
 SOURCE: Journal of Physical Chemistry B (2004), 108(10), 3123-3129  
 CODEN: JPCBFK; ISSN: 1520-6106  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB We present a first-principles study of the structural, electronic, and optical properties of four conjugated polymers, poly(p-phenylene) (PPP), poly(2,7-fluorene) (PF), poly(2,7-carbazole) (PC), and poly(2,7-borafluorene) (PBF), and of their isolated constituent mols. All the calcns. were done using d.-functional theory (DFT) with a plane-wave basis set, pseudopotentials, and local exchange-correlation energy. Resemblances in the atomic structures of the systems studied allow us to make correspondences between their wave functions near the Fermi energy. The dihedral angles of the polymers under consideration are all similar, varying between 26° and 27°. In agreement with exptl. data, we find smaller energy gaps for carbazole and borafluorene compared to biphenyl and fluorene, which is due to differences in the HOMO or LUMO wave functions. However, for the polymers, the exptl. gap for PC was found to be almost the same as for PPP and PF. Our calcns. explain this exptl. observation which is attributed to a change in the ordering of the last two valence bands between carbazole and its polymer. We also find that the energy gap of PBF, which has not been synthesized yet, should be smaller than the min. energy gaps of the other studied polymers by .simeq.0.5 eV. The polarizations for the lowest electronic transitions are presented from the anal. of the wave functions' symmetries. We find excellent agreement between the calculated and available exptl. data, validating the predictions made.

IT 678974-54-4, Poly(5-methyl-5H-dibenzoborole-3,7-diyl) (electronic, structural, and optical properties of conjugated polymers based on carbazole, fluorene, and borafluorene)

RN 678974-54-4 HCAPLUS

CN Poly(5-methyl-5H-dibenzoborole-3,7-diyl) (9CI) (CA INDEX NAME)



CC 36-5 (Physical Properties of Synthetic High Polymers)  
 Section cross-reference(s): 73

IT 92-52-4, Biphenyl, properties 1484-12-4 4569-45-3  
 25190-62-9, Poly(1,4-phenylene) 678974-52-2,

Poly(9,9-dimethyl-9H-fluorene-2,7-diyl) 678974-53-3,  
 Poly(9-methyl-9H-carbazole-2,7-diyl) 678974-54-4,  
 Poly(5-methyl-5H-dibenzoborole-3,7-diyl) 678974-55-5  
 (electronic, structural, and optical properties of conjugated  
 polymers based on carbazole, fluorene, and borafluorene)

REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE  
 IN THE RE FORMAT

=> d 15 2-3 ibib abs hitstr hitind

L5 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:20737 HCAPLUS

DOCUMENT NUMBER: 140:84347

TITLE: Polymer and polymeric luminescent element  
 comprising the same

INVENTOR(S): Tamao, Kohei; Yamaguchi, Shigehiro; Kitano,  
 Makoto; Kobayashi, Satoshi; Sekine, Chizu

PATENT ASSIGNEE(S): Sumitomo Chemical Company, Limited, Japan;  
 Kansai Technology Licensing Organization Co.,  
 Ltd.

SOURCE: PCT Int. Appl., 87 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004003053	A1	20040108	WO 2003-JP8050	2003 0625
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
JP 2004083548	A2	20040318	JP 2002-346790	2002 1129
AU 2003244054	A1	20040119	AU 2003-244054	2003 0625
JP 2004162011	A2	20040610	JP 2003-180646	2003 0625
US 2005170202	A1	20050804	US 2003-518713	2003 0625
PRIORITY APPLN. INFO.: JP 2002-185712				A

2002  
0626

JP 2002-281218

A

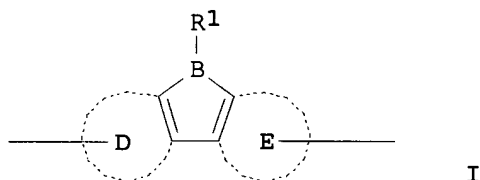
2002  
0926

WO 2003-JP8050

W

2003  
0625

GI



AB The present invention relates to a polymer with no. average mol. weight 103-108 (based on polystyrene) comprising repeating units I, wherein R1 = H, alkyl, alkoxy, alkylthio, aryl, aryloxy, arylthio, arylalkyl, arylalkoxy, arylalkylthio, arylalkenyl, arylalkynyl, amino, substituted amino, silyl, substituted silyl, silyloxy, substituted silyloxy, monovalent heterocyclic group, or halogeno and D, E = (substituted) aromatic ring. Thus, 2.0 g 4,4'-dibromo-2,2'-diiodo-5,5'-dioctyloxy-1,1'-biphenyl (preparation given) 1.01 g (2,4,6-triisopropylphenyl)dimethoxyborane were reacted for 12 h to give 20.5 g 3,7-dibromo-5-(2,4,6-triisopropylphenyl)-2,8-dioctyloxy-5H-dibenzo[b, d]borole, 0.41 g of which was polymerized in the presence of 1.0 g bis(1,5-cyclooctadiene)nickel to give a copolymer with Mn 6.1 + 103 and Mw 9.9 + 103, which was spin-coated on a quartz to give a thin film giving a fluorescence peak at 564 nm.

IT 641629-37-0P

(preparation of luminescent polymers)

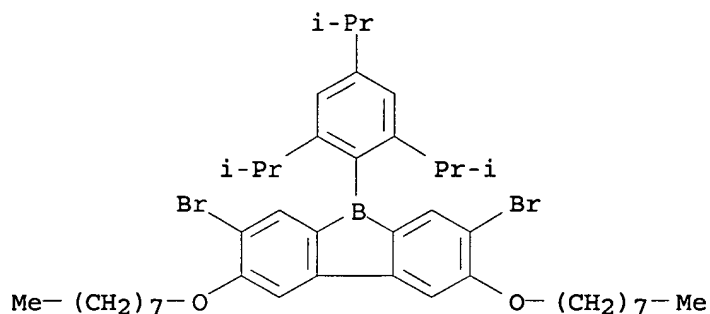
RN 641629-37-0 HCAPLUS

CN 5H-Dibenzoborole, 3,7-dibromo-2,8-bis(octyloxy)-5-[2,4,6-tris(1-methylethyl)phenyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 641629-36-9

CMF C43 H61 B Br2 O2



IC ICM C08G061-10

ICS C08G061-12; H05B033-14; C09K011-06; C09D011-00

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 35, 38, 42

IT 641629-37-0P

(preparation of luminescent polymers)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1970:465569 HCAPLUS

DOCUMENT NUMBER: 73:65569

TITLE: Azomethine derivatives. XI. Monomeric and dimeric arylmethyleamino- and diarylmethyleamino-boron compounds

AUTHOR(S): Summerford, C.; Wade, Kenneth

CORPORATE SOURCE: Chem. Dep., Durham Univ., Durham, UK

SOURCE: Journal of the Chemical Society [Section] A: Inorganic, Physical, Theoretical (1970), (12), 2010-16

CODEN: JCSIAP; ISSN: 0022-4944

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The monomeric aryl- and diarylmethyleaminoboranes Ph<sub>2</sub>C:NBPh<sub>2</sub>, (p-MeC<sub>6</sub>H<sub>4</sub>)<sub>2</sub>C:NBPh<sub>2</sub>, (p-ClC<sub>6</sub>H<sub>4</sub>)<sub>2</sub>C:NBPh<sub>2</sub>, p-BrC<sub>6</sub>H<sub>4</sub>PhC:NBPh<sub>2</sub>, Ph<sub>2</sub>C:NB(2,4,6-Me<sub>3</sub>C<sub>6</sub>H<sub>2</sub>)<sub>2</sub>, PhCH:NB(2,4,6-Me<sub>3</sub>C<sub>6</sub>H<sub>2</sub>)<sub>2</sub>, and QC:NBPh<sub>2</sub> (Q = 2,2'-biphenylene in this abstract) were prepared by one or more of the following routes: (1) R<sub>12</sub>C:NSiMe<sub>3</sub> + R<sub>22</sub>BX; (2) R<sub>22</sub>C:LNi + R<sub>22</sub>BX; (3) 2R<sub>12</sub>C:NH + R<sub>22</sub>BX; (4) R<sub>12</sub>C:NBX<sub>2</sub> + 2R<sub>2</sub>Li; (5) R<sub>12</sub>C:NH<sub>2</sub> + Cl- + NaBPh<sub>4</sub> (X = halogen). The intermediate adduct (p-MeC<sub>6</sub>H<sub>4</sub>)<sub>2</sub>C:NH, BPh<sub>3</sub> was isolated in a reaction of type 5. The associated alkylideneaminoboranes (Ph<sub>2</sub>C:NBPhCl)<sub>n</sub>, (PhCH:NBPhCl)<sub>2</sub>, (PhCH:NBPh<sub>2</sub>)<sub>2</sub>, (Ph<sub>2</sub>C:NBQ)<sub>n</sub>, and (Ph<sub>2</sub>C:NBO<sub>2</sub>C<sub>6</sub>H<sub>4</sub>)<sub>n</sub> were similarly prepared. The monomeric alkylideneaminoboranes are apparently prevented from dimerizing by the bulk of the substituents, especially on boron, which also inhibit approach of potential donor mols. Except for the air-stable Ph<sub>2</sub>C:NB(C<sub>6</sub>H<sub>2</sub>Me<sub>3</sub>-2,4,6)<sub>2</sub>, they are hydrolyzed by moist air. Their ir spectra have characteristic absorptions, assigned ν(C : N .dblharw. B), in the range 1765-1820 cm<sup>-1</sup>. 1H NMR and mass spectra of the compds. are discussed.

IT 28499-73-2P

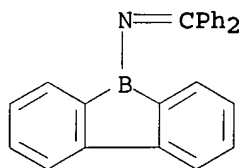
(preparation of)

RN 28499-73-2 HCAPLUS

CN 5H-Dibenzoborole, 5-[(diphenylmethylene)amino]-, polymers (8CI)  
(CA INDEX NAME)

CM 1

CRN 47543-29-3  
CMF C25 H18 B N



CC 22 (Physical Organic Chemistry)  
IT 17814-66-3P **28499-73-2P** 28499-93-6P 28499-94-7P  
29097-39-0P 29097-40-3P 29097-41-4P 29098-26-8P  
29098-27-9P 29098-28-0P  
(preparation of)

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L12 ANSWER 1 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2004:1031831 HCAPLUS  
DOCUMENT NUMBER: 141:426346  
TITLE: Non-aqueous electrolyte secondary battery  
INVENTOR(S): Iwamoto, Kazuya; Koshina, Hizuru; Shimamura, Harunari; Nitta, Yoshiaki  
PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan  
SOURCE: U.S., 14 pp., Cont.-in-part of U.S. 6,090,505.  
CODEN: USXXAM  
DOCUMENT TYPE: **Patent**  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 7  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6824920	B1	20041130	US 2000-601421	2000 0928
US 6090505	A	20000718	US 1998-90484	1998 0603
JP 2000173652	A2	20000623	JP 1998-342887	1998 1202
JP 2000173589	A2	20000623	JP 1998-342888	1998 1202



WO 2000033403

A1

20000608

WO 1999-JP6689

1999  
1130

&lt;--

W: US

RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU,  
MC, NL, PT, SE

PRIORITY APPLN. INFO.:

JP 1997-144873

A

1997  
0603

&lt;--

JP 1998-123199

A

1998  
0506

&lt;--

US 1998-90484

A2

1998  
0603

&lt;--

JP 1998-342887

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1998  
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JP 1998-342888

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WO 1999-JP6689

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1999  
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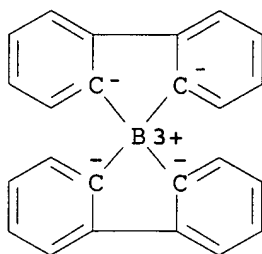
&lt;--

AB A nonaq. electrolyte secondary battery consists of a cathode, an anode capable of intercalating and de-intercalating lithium, a non-aqueous electrolyte solution, and a separator or a solid electrolyte. The anode consists of composite particles made of tin, silicon or zinc coated with a solid solution or an intermetallic compound. The intermetallic compound contains Sn, Si, or Zn and an addnl. elements, such as Mg, Fe, Mo, Zn, Cd, In, Pb, Co, Ni, Al, Sn, Cu, V, or Ge. The electrolyte consists of a lithium salts of an organic acid dissolved in an organic solvent with high oxidation resistant characteristics. The lithium salts of an organic acid can be bistrifluoromethane sulfonic acid imido lithium, bis[1,2-benzenediolato(2-)-O,O'] lithium borate, bis[2,3-naphthalenediolato(2-)-O,O'] lithium borate, lithium bis(2,2'-biphenylene)borate, or bis(5-fluoro-2-olate-1-benzenesulfonic acid-O,O') lithium borate. The non-aqueous electrolyte can contain ethylene carbonate, di-Me carbonate, di-Et carbonate, ethylmethyl carbonate, propylene carbonate,  $\gamma$ -butyro lactone, or  $\gamma$ -valero lactone.

IT 108479-75-0, Lithium bis(2,2'-biphenylene)borate  
(electrolyte; non-aqueous electrolyte secondary battery)

RN 108479-75-0 HCAPLUS

CN Borate(1-), bis([1,1'-biphenyl]-2,2'-diyl)-, lithium, (T-4)- (9CI)  
(CA INDEX NAME)



● Li<sup>+</sup>

IC ICM H01M004-38  
ICS H01M004-42  
INCL 429218100; 429229000; 429231950  
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
IT 96-48-0,  $\gamma$ -Butyrolactone 96-49-1, Ethylene carbonate  
105-58-8, Diethyl carbonate 108-29-2,  $\gamma$ -Valerolactone  
108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate  
623-53-0, Ethylmethyl carbonate 90076-65-6 **108479-75-0**  
, Lithium bis(2,2'-biphenylene)borate 132843-44-8  
156762-86-6 185433-68-5 201536-28-9  
(electrolyte; non-aqueous electrolyte secondary battery)  
REFERENCE COUNT: 73 THERE ARE 73 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

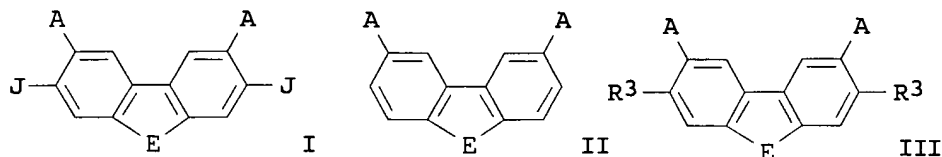
L12 ANSWER 2 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2003:559860 HCAPLUS  
DOCUMENT NUMBER: 139:124832  
TITLE: Functionalized 9-metalated fluorene  
derivatives for organic electroluminescent  
materials and their preparation  
INVENTOR(S): Yamaguchi, Shigehiro; Tamao, Kohei  
PATENT ASSIGNEE(S): Kansai Technology Licensing Organization Co.,  
Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: **Patent**  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003206289	A2	20030722	JP 2002-51	2002 0104

PRIORITY APPLN. INFO.: JP 2002-51  
2002  
0104

OTHER SOURCE(S): MARPAT 139:124832

GI



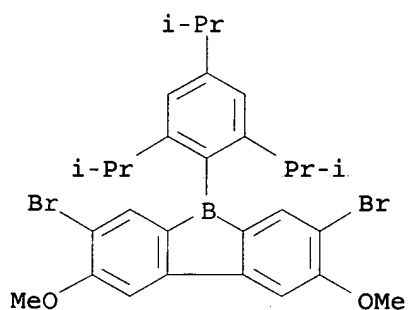
AB The derivs., having lower LUMO than that of fluorene, are I [A = ortho-inductive substituents, e.g., OR, NR<sub>2</sub>, O(CH<sub>2</sub>)<sub>n</sub>OR, NR(CH<sub>2</sub>)<sub>n</sub>NR<sub>2</sub>, etc. (R = C1-12 alkyl; n = 1-3); J = F-excluded halo, metal functional group; E = substituted Si or B], and are synthesized in high yield by these steps; halogenating 4 and 4' position of biphenyl derivs. II (A = the same as above), lithiating 2 and 2' position, and reacting with R<sub>1</sub>R<sub>2</sub>SiXY or R<sub>1</sub>BXY (R<sub>1</sub>, R<sub>2</sub> = C1-12 alkyl, aryl; X, Y = halo, alkoxy). The I may be prepared from II (A, E = the same as above) by lithiation at 2 and 7 position followed by reaction with electrophilic halogenating/metalating agents. Electroluminescent materials represented by III [A, E = the same as above; R<sub>3</sub> = aryl(vinyl), arylolethynyl, heteroaryl(vinyl), heteroarylolethynyl] are further claimed.

IT 454182-34-4P 454182-35-5P

(preparation of dibenzosilole or dibenzoborole derivs. for organic electroluminescent materials having lower LUMO than that of fluorenes)

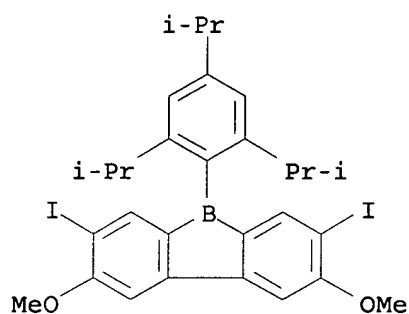
RN 454182-34-4 HCAPLUS

CN 5H-Dibenzoborole, 3,7-dibromo-2,8-dimethoxy-5-[2,4,6-tris(1-methylethyl)phenyl]- (9CI) (CA INDEX NAME)



RN 454182-35-5 HCAPLUS

CN 5H-Dibenzoborole, 3,7-diiodo-2,8-dimethoxy-5-[2,4,6-tris(1-methylethyl)phenyl]- (9CI) (CA INDEX NAME)

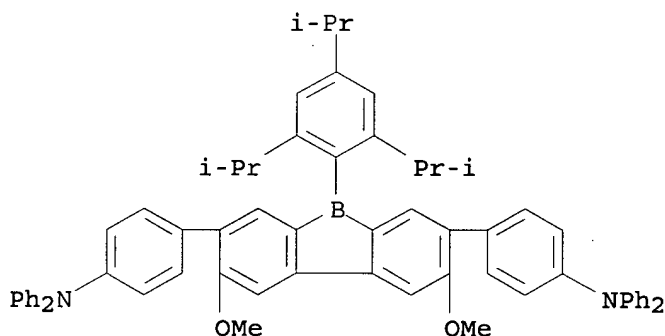


IT 454182-31-1P 454182-32-2P 454182-33-3P

(preparation of dibenzosilole or dibenzoborole derivs. for organic electroluminescent materials having lower LUMO than that of fluorenes)

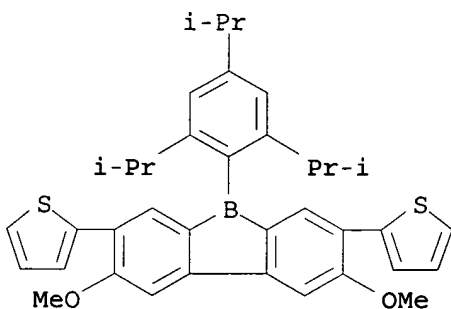
RN 454182-31-1 HCAPLUS

CN Benzenamine, 4,4'-[2,8-dimethoxy-5-[2,4,6-tris(1-methylethyl)phenyl]-5H-dibenzoborole-3,7-diyl]bis[N,N-diphenyl- (9CI) (CA INDEX NAME)



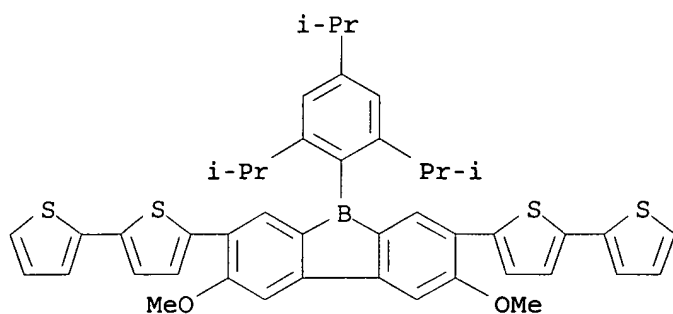
RN 454182-32-2 HCAPLUS

CN 5H-Dibenzoborole, 2,8-dimethoxy-3,7-di-2-thienyl-5-[2,4,6-tris(1-methylethyl)phenyl]- (9CI) (CA INDEX NAME)



RN 454182-33-3 HCAPLUS

CN 5H-Dibenzoborole, 3,7-bis([2,2'-bithiophen]-5-yl)-2,8-dimethoxy-5-[2,4,6-tris(1-methylethyl)phenyl]- (9CI) (CA INDEX NAME)



IC ICM C07F005-02  
ICS C07F007-08; C09K011-06  
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 29  
IT 454182-34-4P 454182-35-5P 454182-36-6P  
565225-98-1P 565226-00-8P 565226-02-0P  
(preparation of dibenzosilole or dibenzoborole derivs. for organic electroluminescent materials having lower LUMO than that of fluorenes)  
IT 454182-31-1P 454182-32-2P 454182-33-3P  
565226-03-1P  
(preparation of dibenzosilole or dibenzoborole derivs. for organic electroluminescent materials having lower LUMO than that of fluorenes)

L12 ANSWER 3 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:978639 HCAPLUS  
DOCUMENT NUMBER: 138:39745  
TITLE: Process for preparing maleic anhydride-modified polyolefins by oxidized adducts of borane and maleic anhydride  
INVENTOR(S): Chung, Tze-Chiang  
PATENT ASSIGNEE(S): Penn State Research Foundation, USA  
SOURCE: U.S. Pat. Appl. Publ., 10 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002198327	A1	20021226	US 2002-156946	2002 0530
US 6699949	B2	20040302	US 2001-293977P	2001 0530

PRIORITY APPLN. INFO.: <--

AB The process comprises (a) mixing trialkylborane (e.g., tributylborane) with maleic anhydride and polyolefin (e.g., atactic polypropylene) in an inert organic solvent at 0-150°

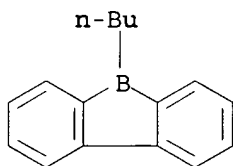
to form a reaction mixture containing a trialkylborane-maleic anhydride complex; (b) contacting the reaction mixture with an oxygen-containing oxidizing agent for 10 min-10 h at 0-150° at mole ratio of oxidizing agent to trialkylborane 1/2-4/3 to form a monooxidized trialkylborane adduct that undergoes hemolytic cleavage to form an alkoxy radical, wherein alkoxy radical, in turn, activates the chain of the polyolefin by alkoxy radical hydrogen-abstraction, and initiates an addition reaction between the maleic anhydride and the activated polyolefin to produce a modified polyolefin having maleic anhydride side groups; and (c) recovering the modified polyolefin. The maleic anhydride-modified polyolefin prepared has controlled mol. weight and maleic anhydride content.

IT 7760-71-6

(process of preparing maleic anhydride-modified polyolefins by oxidation adducts of borane and maleic anhydride)

RN 7760-71-6 HCAPLUS

CN 5H-Dibenzoborole, 5-butyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



IC ICM C08F255-00

INCL 525251000

CC 35-8 (Chemistry of Synthetic High Polymers)

IT 97-94-9, Triethylborane 280-64-8D, 9-Borabicyclononane, alkyl derivative 1069-54-1D, Disiamylborane, alkyl derivative 1116-61-6, Tripropylborane 1568-65-6D, Dicyclohexylborane, alkyl derivative 1883-38-1, Tripentylborane 3248-78-0, Trioctylborane 7397-46-8D, Methoxydiethylborane, adduct with maleic anhydride, oxidized 7760-71-6 51458-06-1D, Dimesitylborane, alkyl derivative 478917-44-1D, alkyl derivative (process of preparing maleic anhydride-modified polyolefins by oxidation adducts of borane and maleic anhydride)

L12 ANSWER 4 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:928599 HCAPLUS

DOCUMENT NUMBER: 138:303716

TITLE: syn-Sesquinorbornenyl carbocations and their boron analogues: an ab initio and DFT study

AUTHOR(S): Eckert-Maksic, Mirjana; Antol, Ivana; Margetic, Davor; Glasovac, Zoran

CORPORATE SOURCE: Division of Organic Chemistry and Biochemistry, Rudjer Boskovic Institute, Zagreb, HR-10002, Croatia

SOURCE: Journal of the Chemical Society, Perkin Transactions 2 (2002), (12), 2057-2063  
CODEN: JCSPGI; ISSN: 1472-779X

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB MP2 and DFT calcns. employing 6-31G\* were carried out to study the structure of some of the carbocations and their B analogs embedded in the syn-sesquinorbornene framework, hitherto not observed exptl. The calculated min. energy structures of all species provide evidence

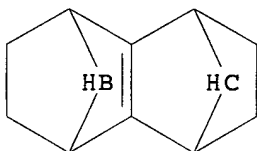
for homoconjugative interaction between the electron deficient center(s) and the C-C double bond. The use of isodesmic reactions based upon MP2(fc)/6-31G\* energies indicates that the homoconjugative stabilization of mono- and di-cations is greater than those of the isoelectronic B compds. The calculated  $^{13}\text{C}$  and  $^{11}\text{B}$  NMR chemical shifts support this conclusion.

IT 507266-25-3

(ab initio and DFT study of syn-sesquinorbornenyl carbocations and their boron analogs)

RN 507266-25-3 HCAPLUS

CN 1,4-Borylene-5,8-methanonaphthalen-9-yl, 1,2,3,4,5,6,7,8-octahydro-(9CI) (CA INDEX NAME)



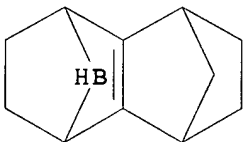
IT 507266-23-1 507266-24-2 507266-26-4

507266-27-5

(isodesmic hydride transfer; ab initio and DFT study of syn-sesquinorbornenyl carbocations and their boron analogs)

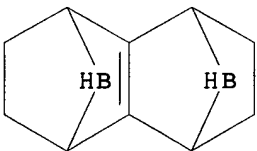
RN 507266-23-1 HCAPLUS

CN 1,4-Borylene-5,8-methanonaphthalene, 1,2,3,4,5,6,7,8-octahydro-(9CI) (CA INDEX NAME)



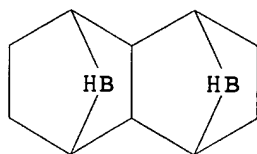
RN 507266-24-2 HCAPLUS

CN 1,4:5,8-Diborylenenaphthalene, 1,2,3,4,5,6,7,8-octahydro- (9CI) (CA INDEX NAME)

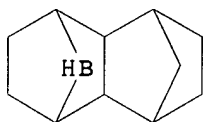


RN 507266-26-4 HCAPLUS

CN 1,4:5,8-Diborylenenaphthalene, decahydro- (9CI) (CA INDEX NAME)



RN 507266-27-5 HCAPLUS  
 CN 1,4-Borylene-5,8-methanonaphthalene, decahydro- (9CI) (CA INDEX NAME)



CC 22-2 (Physical Organic Chemistry)  
 IT 507266-22-0 507266-25-3  
 (ab initio and DFT study of syn-sesquinorbornenyl carbocations and their boron analogs)  
 IT 23010-44-8, Bicyclo[2.2.1]hept-2-en-7-ylum 32021-58-2  
 143172-45-6, 7-Borabicyclo[2.2.1]hept-2-ene 507266-21-9  
 507266-23-1 507266-24-2 507266-26-4  
 507266-27-5 507444-50-0 507444-51-1  
 (isodesmic hydride transfer; ab initio and DFT study of syn-sesquinorbornenyl carbocations and their boron analogs)  
 REFERENCE COUNT: 61 THERE ARE 61 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 5 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2002:685440 HCAPLUS  
 DOCUMENT NUMBER: 137:370137  
 TITLE: The Theoretical Design of Neutral Planar Tetracoordinate Carbon Molecules with C(C)4 Substructures  
 AUTHOR(S): Wang, Zhi-Xiang; Schleyer, Paul von Rague  
 CORPORATE SOURCE: Computational Chemistry Annex, University of Georgia, Athens, GA, 30602-2525, USA  
 SOURCE: Journal of the American Chemical Society (2002), 124(40), 11979-11982  
 CODEN: JACSAT; ISSN: 0002-7863  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB Using a new charge-compensation strategy, neutral mols. were designed with perfectly planar C(C)4-type tetracoordinate carbon arrangements (ptC) employing DFT computations. These designs, based on the planar preference of methane dications, replace two remote carbons in spiroalkaplanes by borons or two remote hydrogens by BH3 groups; the two formally anionic boron units which result compensate the formal double pos. charge on the central ptC's. The LUMOs correspond to the "wasted" lone pair HOMOs of the alkaplanes. As compared to the latter,  $\pi$  occupancies on the central carbon are much smaller (less than



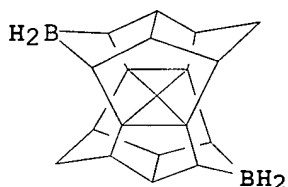
0.7e), and the IPs are much larger. The newly predicted compds. utilize all of the electrons more effectively. There are no lone pairs, and the ptC-C bond lengths are ca. 1.50 Å. The Wiberg bond index sums of the ptC's are near 3.2, and the boron sums are close to 4.

IT 475276-94-9

(theor. study of tetracoordinate carbon mols. with C(C)4 substructures)

RN 475276-94-9 HCAPLUS

CN 4,9,14,18-Methyno-1,20-dibora-1,2:16,20-diseco[5]fullerane-C20-Ih, 1,20-dihydro- (9CI) (CA INDEX NAME)



CC 29-4 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 22, 24

IT 74-82-8, Methane, properties 157-40-4, Spiropentane 20741-88-2, Methane(1+), properties 73353-64-7, Indeno[7,1-cd]indene 101517-28-6, Spiro[2.2]pentane, radical ion(1+) 148810-14-4, Methane, radical ion(2+), properties 179032-57-6, Spiro[2.2]octaplane 251918-68-0 330597-93-8 475276-87-0 475276-88-1 475276-89-2 475276-90-5 475276-91-6 475276-92-7 475276-93-8 475276-94-9 475276-95-0 475276-96-1 475276-97-2 475276-98-3 475467-16-4 475467-22-2

(theor. study of tetracoordinate carbon mols. with C(C)4 substructures)

REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 6 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:624945 HCAPLUS

DOCUMENT NUMBER: 137:353357

TITLE: Boroxyl-based living free radical initiators

AUTHOR(S): Han, H.; Xu, G.; Chung, T. C.

CORPORATE SOURCE: Dep. Materials Sci. Eng., Pennsylvania State Univ., University Park, PA, 16802, USA

SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2002), 43(2), 82-83

CODEN: ACPPAY; ISSN: 0032-3934

PUBLISHER: American Chemical Society, Division of Polymer Chemistry

DOCUMENT TYPE: Journal; (computer optical disk)

LANGUAGE: English

AB Living radical polymerization occurring at ambient temperature with the injection of oxygen to 9-borofluorene derivs. in the presence of monomers was studied. The diminished chain-transfer and termination reactions in the homogeneous reaction conditions imply the in situ formation of a stable borinate radical, which serves as the reversible capping agent with the propagating radical

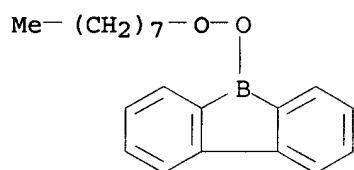
during the living radical polymerization The functionalization of polyolefins occurred by first incorporating borane groups into the polyolefin chain that were then spontaneously monooxidized by oxygen to form peroxide (B-O-O-C) moieties. Next, these moieties initiated free radical graft-from polymerization of functional monomers (such as acrylic and methacrylic monomers) at ambient temperature to form polyolefin graft and block copolymers containing polyolefin and functional polymer segments. Ethylene-Me methacrylate block copolymers and PMMA were prepared using this method. and were white solids with well-defined mol. structures.

IT 441019-27-8P

(boroxyl-based living free radical initiator for polymerization of vinyl compds. and polymerization mechanism)

RN 441019-27-8 HCAPLUS

CN 5H-Dibenzoborole, 5-(octyldioxy)- (9CI) (CA INDEX NAME)

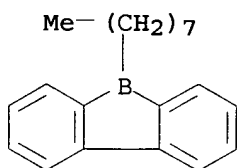


IT 441019-26-7

(oxidation of; boroxyl-based living free radical initiator for polymerization of vinyl compds. and polymerization mechanism)

RN 441019-26-7 HCAPLUS

CN 5H-Dibenzoborole, 5-octyl- (9CI) (CA INDEX NAME)



CC 35-3 (Chemistry of Synthetic High Polymers)

IT 441019-27-8P

(boroxyl-based living free radical initiator for polymerization of vinyl compds. and polymerization mechanism)

IT 441019-26-7

(oxidation of; boroxyl-based living free radical initiator for polymerization of vinyl compds. and polymerization mechanism)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 7 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:522666 HCAPLUS

DOCUMENT NUMBER: 137:94184

TITLE: Alkylperoxydiarylborane derivatives as initiators for living free radical polymerization

INVENTOR(S): Chung, Tze-chiang

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 17 pp.

DOCUMENT TYPE: CODEN: USXXCO  
 LANGUAGE: Patent  
 FAMILY ACC. NUM. COUNT: English  
 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002091211	A1	20020711	US 2001-887116	2001 0625
US 6420502	B2	20020716	<--	
US 2002198338	A1	20021226	US 2002-156945	2002 0530
US 6515088	B2	20030204	<--	
PRIORITY APPLN. INFO.:			US 2000-242592P	P 2000 1023
			<--	
			US 2001-887116	A3 2001 0625
			<--	

OTHER SOURCE(S): MARPAT 137:94184

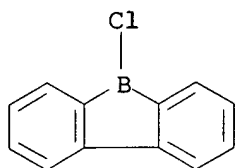
AB New living free radical initiators are based on alkylperoxydiarylborane and its derivs. that may be represented by the general formula  $R-[O-O-B-Ph_1(Ph_2)]_n$  where  $n$  is from 1 to 4,  $R$  is a hydrogen or a linear, branched or cyclic alkyl radical having a mol. weight from 1 to about 500, and  $Ph_1$  and  $Ph_2$  are independently selected from aryl radicals, based on  $Ph$  or substituted  $Ph$  groups, with the proviso that  $Ph_1$  and  $Ph_2$  can be the chemical bridged to each other with a linking group or with a direct chemical bond between the two aryl groups to form a cyclic ring structure that includes a boron atom. At ambient temperature the  $R-[O-O-B-Ph_1(Ph_2)]_n$  species spontaneously homolyzes to form an alkoxyl radical  $R-[O\cdot]_n$ , which is active in initiating living polymerization of polymerizable monomers, and a dormant diarylborinate radical  $\cdot O-B-Ph_1(Ph_2)$ , which is too stable to initiate polymerization due to the back-donating of electron d. to the empty p-orbital of boron, but which may form a reversible bond with the radical at the growing polymer chain end to prevent undesirable side reactions. Thus, 1-octylperoxy-9-borafluorene initiator was synthesized and used in radical polymerization of MMA and Bu methacrylate. The polymers were living as indicated by a linear increase of polymer mol. weight with monomer conversion, a narrow mol. weight distribution, and the formation of block copolymers by sequential monomer addition

IT 13059-59-1P, 9-Chloro-9-borafluorene 14265-95-3P  
 , Bis(9-borafluorene) 441019-26-7P

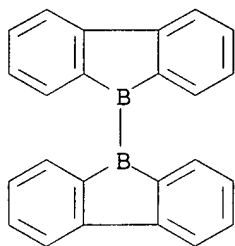
(in synthesis of initiators based on alkylperoxydiarylborane derivs. for living free radical polymerization)

RN 13059-59-1 HCAPLUS

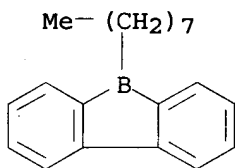
CN 5H-Dibenzoborole, 5-chloro- (7CI, 8CI, 9CI) (CA INDEX NAME)



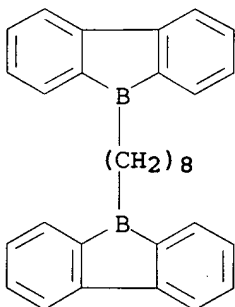
RN 14265-95-3 HCAPLUS  
 CN 5,5'-Bi-5H-dibenzoborole (8CI, 9CI) (CA INDEX NAME)



RN 441019-26-7 HCAPLUS  
 CN 5H-Dibenzoborole, 5-octyl- (9CI) (CA INDEX NAME)

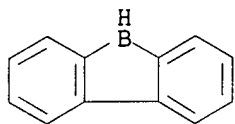


IT 441019-28-9P  
 (in synthesis of initiators based on alkylperoxydiarylborane  
 derivs. for living free radical polymerization)  
 RN 441019-28-9 HCAPLUS  
 CN 5H-Dibenzoborole, 5,5'-(1,8-octanediyl)bis- (9CI) (CA INDEX NAME)

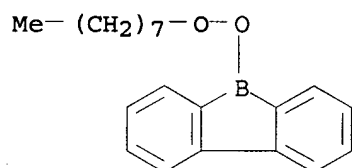


IT 244-33-7, 9-Borafluorene  
 (in synthesis of initiators based on alkylperoxydiarylborane  
 derivs. for living free radical polymerization)  
 RN 244-33-7 HCAPLUS

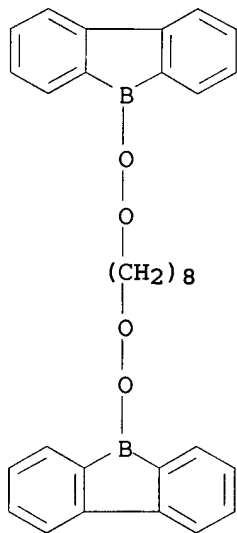
CN 5H-Dibenzoborole (7CI, 8CI, 9CI) (CA INDEX NAME)



IT 441019-27-8P 441019-29-0P  
 (initiators based on alkylperoxydiarylborane derivs. for living  
 free radical polymerization)  
 RN 441019-27-8 HCAPLUS  
 CN 5H-Dibenzoborole, 5-(octyldioxy)- (9CI) (CA INDEX NAME)



RN 441019-29-0 HCAPLUS  
 CN 5H-Dibenzoborole, 5,5'-[1,8-octanediylbis(dioxy)]bis- (9CI) (CA  
 INDEX NAME)



IC ICM C08F004-12  
 INCL 526196000  
 CC 35-3 (Chemistry of Synthetic High Polymers)  
 IT 13029-09-9P, 2,2'-Dibromobiphenyl 13059-59-1P,  
 9-Chloro-9-borafluorene 14265-95-3P, Bis(9-borafluorene)  
 441019-26-7P  
 (in synthesis of initiators based on alkylperoxydiarylborane  
 derivs. for living free radical polymerization)  
 IT 16291-32-0P, 2,2'-Dilithiobiphenyl 441019-28-9P

(in synthesis of initiators based on alkylperoxydiarylborane  
derivs. for living free radical polymerization)

IT 111-66-0, 1-Octene 244-33-7, 9-Borafluorene 583-53-9,  
o-Dibromobenzene 3710-30-3, 1,7-Octadiene 10294-34-5, Boron  
trichloride

(in synthesis of initiators based on alkylperoxydiarylborane  
derivs. for living free radical polymerization)

IT 441019-27-8P 441019-29-0P  
(initiators based on alkylperoxydiarylborane derivs. for living  
free radical polymerization)

L12 ANSWER 8 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:511736 HCAPLUS

DOCUMENT NUMBER: 137:201358

TITLE: Dibenzoborole-Containing  $\pi$ -Electron  
Systems: Remarkable Fluorescence Change Based  
on the "On/Off" Control of the  $p\pi-\pi^*$   
Conjugation

AUTHOR(S): Yamaguchi, Shigehiro; Shirasaka, Toshiaki;  
Akiyama, Seiji; Tamao, Kohei

CORPORATE SOURCE: Institute for Chemical Research, Kyoto  
University, Uji, Kyoto, 611-0011, Japan

SOURCE: Journal of the American Chemical Society  
(2002), 124(30), 8816-8817  
CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

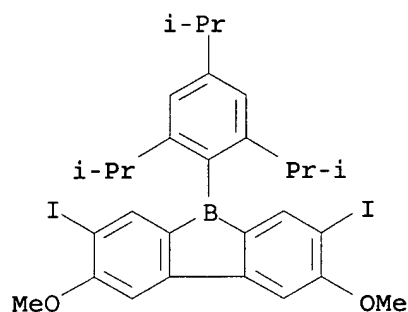
OTHER SOURCE(S): CASREACT 137:201358

AB Dibenzoborole derivs. with various groups such as  
(N,N-diphenylamino)phenyl, thienyl, and bithienyl groups at the  
3,7-positions were synthesized and their photophys. properties  
studied. These new  $\pi$ -electron systems show significant  
solvatochromism in the fluorescence spectra. Thus, .apprx.100-140  
nm blue shifts in the emission maxima and 20-30-fold increments in  
the quantum yields are observed upon changing the solvent from THF to  
DMF. Similar fluorescence changes are observed upon the addition of  
Bu<sub>4</sub>NF to their THF solns., demonstrating their sensing abilities  
toward a fluoride ion. These fluorescence changes result from the  
on/off control of the  $p\pi-\pi^*$  conjugation in their LUMO by the  
coordination of donor solvents or F<sup>-</sup> ion to the B atom in the  
dibenzoborole skeleton.

IT 454182-35-5P  
(preparation and Kosugi-Migita-Stille coupling reaction of, with  
arylstannanes in presence of palladium catalyst)

RN 454182-35-5 HCAPLUS

CN 5H-Dibenzoborole, 3,7-diiodo-2,8-dimethoxy-5-[2,4,6-tris(1-  
methylethyl)phenyl]- (9CI) (CA INDEX NAME)

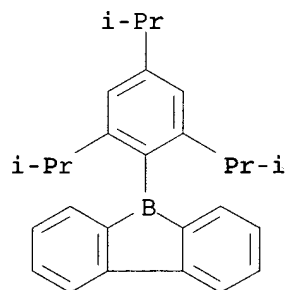


IT 454182-30-0P

(preparation and fluorescence of)

RN 454182-30-0 HCAPLUS

CN 5H-Dibenzoborole, 5-[2,4,6-tris(1-methylethyl)phenyl]- (9CI) (CA INDEX NAME)

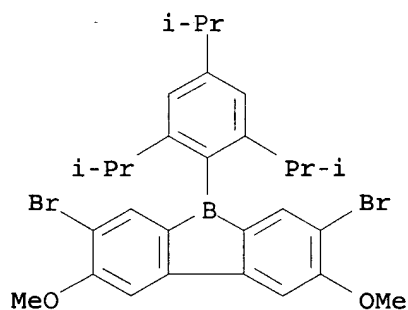


IT 454182-34-4P

(preparation and iodination of)

RN 454182-34-4 HCAPLUS

CN 5H-Dibenzoborole, 3,7-dibromo-2,8-dimethoxy-5-[2,4,6-tris(1-methylethyl)phenyl]- (9CI) (CA INDEX NAME)

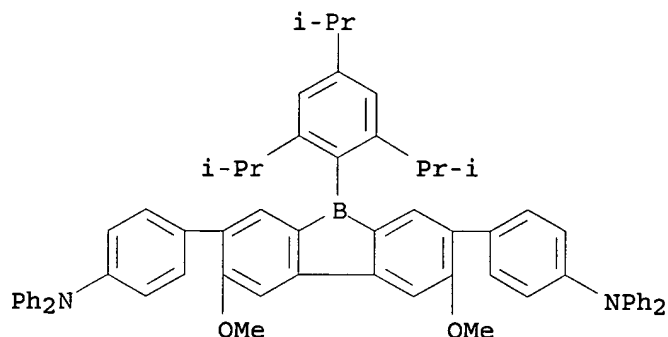


IT 454182-31-1P 454182-32-2P 454182-33-3P

(solvatochromism; preparation and changes in fluorescence spectrum upon coordination of donor solvents or fluoride ion)

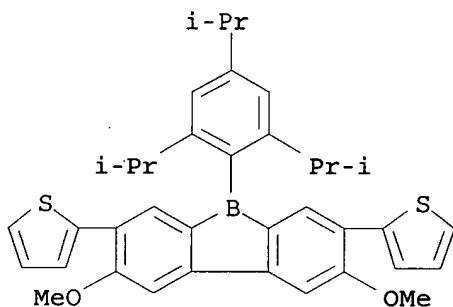
RN 454182-31-1 HCAPLUS

CN Benzenamine, 4,4'-[2,8-dimethoxy-5-[2,4,6-tris(1-methylethyl)phenyl]-5H-dibenzoborole-3,7-diyl]bis[N,N-diphenyl]- (9CI) (CA INDEX NAME)



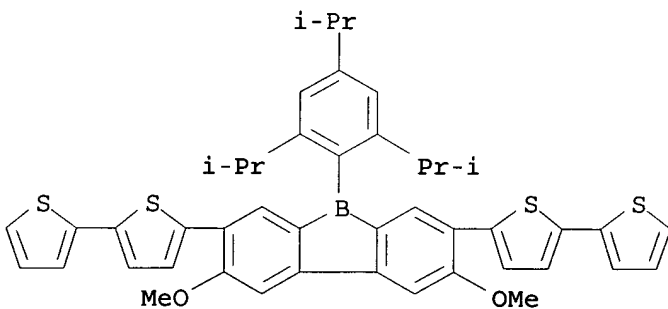
RN 454182-32-2 HCAPLUS

CN 5H-Dibenzoborole, 2,8-dimethoxy-3,7-di-2-thienyl-5-[2,4,6-tris(1-methylethyl)phenyl]- (9CI) (CA INDEX NAME)



RN 454182-33-3 HCAPLUS

CN 5H-Dibenzoborole, 3,7-bis([2,2'-bithiophen]-5-yl)-2,8-dimethoxy-5-[2,4,6-tris(1-methylethyl)phenyl]- (9CI) (CA INDEX NAME)



CC 29-4 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 22, 73

IT 454182-35-5P

(preparation and Kosugi-Migita-Stille coupling reaction of, with arylstannanes in presence of palladium catalyst)

IT 454182-30-0P

(preparation and fluorescence of)

IT 454182-34-4P

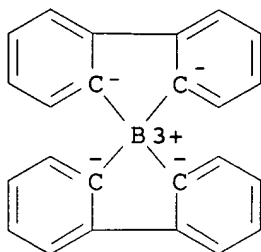


(preparation and iodination of)  
IT 454182-31-1P 454182-32-2P 454182-33-3P  
(solvatochromism; preparation and changes in fluorescence spectrum  
upon coordination of donor solvents or fluoride ion)  
REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L12 ANSWER 9 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2002:292085 HCAPLUS  
DOCUMENT NUMBER: 136:332792  
TITLE: IR laser heat mode type negative working  
lithographic printing plate master  
INVENTOR(S): Shimada, Kazuto; Nakamura, Ippei; Sorori,  
Tadahiro  
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 25 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2002116539	A2	20020419	JP 2000-310808	2000 1011
				<--
PRIORITY APPLN. INFO.:			JP 2000-310808	2000 1011
				<--

OTHER SOURCE(S): MARPAT 136:332792  
AB The title heat mode type neg. working lithog. printing plate  
master contains (A) an onium type polymerization initiator, (B) a  
photothermal conversion compound, (C) a polymerizable compound, and  
(D) a borate compound represented by Ar<sub>4</sub>B-M<sup>+</sup> (M<sup>+</sup> = cation; Ar =  
aromatic) in a photosensitive layer. The printing plate master shows  
excellent sensitivity and storage stability.  
IT 108479-75-0  
(borate compound in photosensitive layer of IR laser heat mode  
type neg. working lithog. printing plate master to improve  
sensitivity as well as storage stability)  
RN 108479-75-0 HCAPLUS  
CN Borate(1-), bis([1,1'-biphenyl]-2,2'-diyl)-, lithium, (T-4)- (9CI)  
(CA INDEX NAME)



● Li<sup>+</sup>

IC ICM G03F007-029  
ICS B41N001-14; G03F007-00; G03F007-004; G03F007-027  
CC 74-6 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
IT 143-66-8 15522-59-5 15525-15-2 26985-34-2  
108479-75-0 144699-38-7 146761-08-2 153347-65-0  
159123-85-0 412267-88-0 412267-90-4 412267-92-6  
412267-93-7 412267-95-9 412267-96-0  
(borate compound in photosensitive layer of IR laser heat mode type neg. working lithog. printing plate master to improve sensitivity as well as storage stability)

L12 ANSWER 10 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2001:614710 HCAPLUS  
DOCUMENT NUMBER: 135:344537  
TITLE: Heterobuckybowls: A Theoretical Study on the Structure, Bowl-to-Bowl Inversion Barrier, Bond Length Alternation, Structure-Inversion Barrier Relationship, Stability, and Synthetic Feasibility  
AUTHOR(S): Priyakumar, U. Deva; Sastry, G. Narahari  
CORPORATE SOURCE: Department of Chemistry, Pondicherry University, Pondicherry, 605 014, India  
SOURCE: Journal of Organic Chemistry (2001), 66(20), 6523-6530  
CODEN: JOCEAH; ISSN: 0022-3263  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Hybrid d. functional theory (DFT) calcns. at the B3LYP/cc-pVDZ level were performed on a series of heterobuckybowls, 3X, C18X3H6 (X = O, NH, CH2, BH, S, PH, PH3, Si, SiH2, and AlH). The min. energy conformations and the transition states for bowl-to-bowl inversion, where the geometry is bowl shaped, are computed and characterized by frequency calcns. The geometries of heterotrindenes, 2X, C12X3H6 (X = O, NH, CH2, BH, S, PH, PH3, Si, SiH2, and AlH), were obtained, and the bond length alternation ( $\Delta$ ) in the central benzenoid ring shows remarkable sensitivity as a function of substituent with a wide range of fluctuations (-0.014 to +0.092 Å). The  $\Delta$  computed in 2BH was found to be comparable with the highest bond alternation reported to date in benzenoid frameworks. The inversion dynamics of these heterobowls and their bowl depths were fit to a mixed

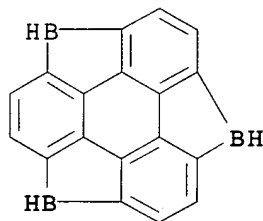
quartic/quadratic function. The size of the heteroatom seems to exclusively control the bowl depth and rigidity as well as the synthetic feasibility. In contrast, the bond length alternation seems to be controlled by electronic factors and not by the size of the substituted atom either in trindenenes or in heterosumanenes. The thermodyn. stability of this class of compds. is very much comparable with trithiasumanene (3S), which was synthesized recently. The chemical hardness ( $\eta$ ) was measured to assess the stability of the heterosumanenes. The strain energy buildup in a sequential ring closure strategy along two synthetic routes, namely a triphenylene route and a trindene route, were explored, and the trindene route was found to be highly favorable for making such compds. compared to the triphenylene route. However, in both routes the ease of the synthetic feasibility increases as the size of the heteroatom increases.

IT 371785-58-9

(theor. study on structure, bowl-to-bowl inversion barrier, bond length alternation, structure-inversion barrier relationship, stability, and synthetic feasibility of heterobuckybowls)

RN 371785-58-9 HCAPLUS

CN 1H-Triphenyleno[1,12-bcd:4,5-b'c'd':8,9-b''c''d'']trisborole, 4,7-dihydro- (9CI) (CA INDEX NAME)

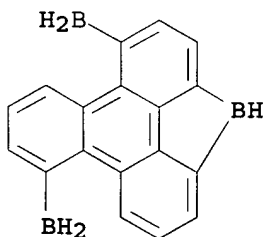


IT 371785-66-9 371785-75-0 371786-03-7

(theor. study on structure, bowl-to-bowl inversion barrier, bond length alternation, structure-inversion barrier relationship, stability, and synthetic feasibility of heterobuckybowls)

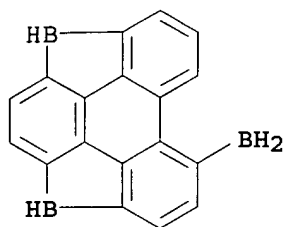
RN 371785-66-9 HCAPLUS

CN 4H-Triphenyleno[1,12-bcd]borole, 1,8-diboryl- (9CI) (CA INDEX NAME)

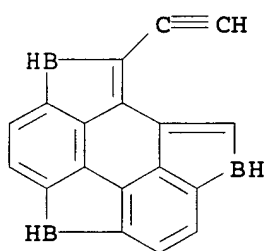


RN 371785-75-0 HCAPLUS

CN Triphenyleno[1,12-bcd:4,5-b'c'd']bisborole, 6-boryl-3,10-dihydro- (9CI) (CA INDEX NAME)



RN 371786-03-7 HCAPLUS  
 CN 1H-Phenanthro[1,10-bc:4,5-b'c'd':8,9-b''c'']trisborole,  
 5-ethynyl-4,7-dihydro- (9CI) (CA INDEX NAME)



CC 29-7 (Organometallic and Organometalloidal Compounds)  
 Section cross-reference(s): 22  
 IT 151253-59-7 251991-63-6 260353-02-4 330163-77-4  
 330163-78-5 **371785-58-9** 371785-59-0 371785-60-3  
 371785-61-4 371785-62-5  
 (theor. study on structure, bowl-to-bowl inversion barrier,  
 bond length alternation, structure-inversion barrier  
 relationship, stability, and synthetic feasibility of  
 heterobuckybowls)  
 IT 151253-57-5 151253-58-6 371785-64-7, Triphenyleno[1,12-  
 bcd]furan-1,8-diol 371785-65-8 **371785-66-9**  
 371785-67-0 371785-68-1 371785-69-2 371785-70-5  
 371785-71-6 371785-72-7 371785-73-8 371785-74-9  
**371785-75-0** 371785-76-1 371785-77-2 371785-78-3  
 371785-79-4 371785-80-7 371785-81-8 371785-90-9  
 371785-91-0 371785-92-1 371785-93-2 371785-94-3  
 371785-95-4 371785-96-5 371785-97-6 371785-98-7  
 371785-99-8 371786-00-4 371786-01-5 371786-02-6  
**371786-03-7** 371786-04-8 371786-05-9 371786-06-0  
 371786-07-1 371786-08-2 371786-09-3  
 (theor. study on structure, bowl-to-bowl inversion barrier,  
 bond length alternation, structure-inversion barrier  
 relationship, stability, and synthetic feasibility of  
 heterobuckybowls)  
 REFERENCE COUNT: 92 THERE ARE 92 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE  
 IN THE RE FORMAT

L12 ANSWER 11 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2001:351869 HCAPLUS  
 DOCUMENT NUMBER: 135:166540  
 TITLE: Tailoring the curvature, bowl rigidity and  
 stability of heterobuckybowls: theoretical

design of synthetic strategies towards heterosumanenes

AUTHOR(S): Priyakumar, U. D.; Sastry, G. N.

CORPORATE SOURCE: Department of Chemistry, Pondicherry University, Pondicherry, India

SOURCE: Journal of Molecular Graphics & Modelling (2001), 19(2), 266-269  
CODEN: JMGMFI; ISSN: 1093-3263

PUBLISHER: Elsevier Science Inc.

DOCUMENT TYPE: Journal

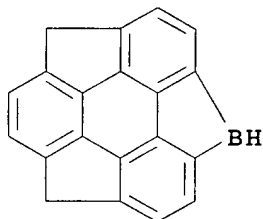
LANGUAGE: English

AB Quantum mech. calcns. predict that larger heteroatom substituents on the periphery increase the feasibility of the crucial third ring closure in sumanene and are responsible for the accompanying modulations in the curvature, rigidity, stability and some of the physicochem. properties of the resulting heterosumanenes. Systematic application of semiempirical, ab initio, and DFT methods reveal that the qual. trends obtained and our principal conclusions are independent of level of theory, albeit with minor quant. differences.

IT 353739-74-9  
(strain energy; theor. design of synthetic strategies towards heterosumanenes)

RN 353739-74-9 HCAPLUS

CN 1H-Dicyclopenta[4,5:8,9]triphenylene[1,12-bcd]borole, 4,7-dihydro-(9CI) (CA INDEX NAME)



CC 22-2 (Physical Organic Chemistry)  
Section cross-reference(s): 29, 65

IT 151253-59-7, Sumanene 334541-89-8 353739-72-7 353739-73-8  
353739-74-9 353739-75-0 353739-76-1 353739-77-2  
353739-78-3  
(strain energy; theor. design of synthetic strategies towards heterosumanenes)

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 12 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:288498 HCAPLUS

DOCUMENT NUMBER: 135:76914

TITLE: BN-Doped Fullerenes: An NICS Characterization

AUTHOR(S): Chen, Zhongfang; Jiao, Haijun; Hirsch, Andreas; Thiel, Walter

CORPORATE SOURCE: Institut fuer Organische Chemie, Universitaet Erlangen-Nuernberg, Erlangen, 91054, Germany

SOURCE: Journal of Organic Chemistry (2001), 66(10), 3380-3383  
CODEN: JOCEAH; ISSN: 0022-3263

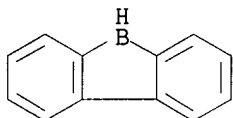
PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB Heterofullerenes C58(BN), C54(BN)3, C48(BN)6, and C12(BN)24 and their hexaanions as well as the C58(BN) dimer were studied by ab initio calcns. From the computed nucleus independent chemical shifts (NICS) at the cage center and also at the center of individual rings, BN-doped fullerenes C58(BN), C54(BN)3, and C48(BN)6 are slightly more aromatic than C60, whereas the corresponding hexaanions are significantly less aromatic than C606-. The predicted NICS values may be useful for the identification of the heterofullerenes through their endohedral 3He NMR chemical shifts. Compared to C60, the dimerization of C58(BN) is more exothermic by 16 kcal/mol.

IT 244-33-7, 9-Borafluorene 347358-07-0,  
 5H-Dibenzoborol-5-amine 347358-08-1  
 (calcn. of NICS values at cage center of)

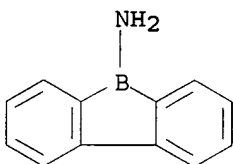
RN 244-33-7 HCAPLUS

CN 5H-Dibenzoborole (7CI, 8CI, 9CI) (CA INDEX NAME)



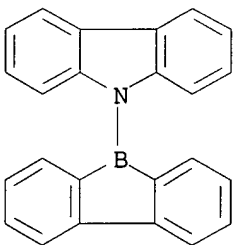
RN 347358-07-0 HCAPLUS

CN 5H-Dibenzoborol-5-amine (9CI) (CA INDEX NAME)



RN 347358-08-1 HCAPLUS

CN 9H-Carbazole, 9-(5H-dibenzoborol-5-yl)- (9CI) (CA INDEX NAME)



CC 29-4 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 22

IT 86-74-8, 9-Azafluorene 91-20-3, Naphthalene, properties  
 109-97-7, Pyrrole 187-78-0, Cyclopent[fg]acenaphthylene  
 244-33-7, 9-Borafluorene 287-87-6, Borole 1425-58-7,

10,9-Borazaronaphthalene 45376-40-7 99685-96-8, C60 Fullerene  
 139703-76-7, [5,6]Fulleride(6-)-C60-Ih 155472-06-3,  
 1H-Borol-1-amine 155774-88-2, Fullerene-C120 192522-25-1  
 347358-06-9 347358-07-0, 5H-Dibenzoborol-5-amine  
 347358-08-1 347358-09-2

(calcn. of NICS values at cage center of)

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE  
 IN THE RE FORMAT

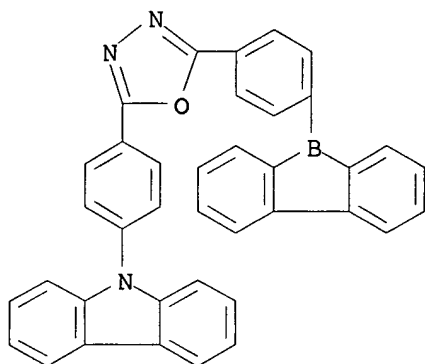
L12 ANSWER 13 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:242953 HCAPLUS  
 DOCUMENT NUMBER: 134:287602  
 TITLE: Organic electroluminescent component  
 INVENTOR(S): Ueda, Noriko; Okubo, Yasushi; Kita, Hiroshi  
 PATENT ASSIGNEE(S): Konica Co., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 30 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001093670	A2	20010406	JP 1999-274848	1999 0928

PRIORITY APPLN. INFO.: JP 1999-274848  
 1999  
 0928

OTHER SOURCE(S): MARPAT 134:287602  
 AB The invention refers to an organic electroluminescent component  
 containing at least one compound R1R2N(Q1)n1BAr1Ar2 [Ar1,2 =  
 (un)substituted aryl, and may be joined to form a ring with the B  
 atom; R1,2 = functional group, and may be joined to form a ring  
 with the N atom; Q1 = (un)substituted arylene; n1 = 0 or 1].  
 IT 332350-45-5  
 (organic electroluminescent component)  
 RN 332350-45-5 HCAPLUS  
 CN 9H-Carbazole, 9-[4-[5-[4-(5H-dibenzoborol-5-yl)phenyl]-1,3,4-  
 oxadiazol-2-yl]phenyl]- (9CI) (CA INDEX NAME)



IC ICM H05B033-14  
ICS C09K011-06; H05B033-22  
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
IT 38186-32-2 38186-34-4 332350-25-1 332350-29-5 332350-31-9  
332350-33-1 332350-35-3 332350-37-5 332350-39-7  
332350-41-1 332350-42-2 332350-43-3 332350-44-4  
**332350-45-5** 332350-46-6 332350-47-7 332350-48-8  
332350-49-9 332350-50-2 332350-51-3 332350-52-4  
332350-53-5 332350-54-6 332350-55-7 332350-56-8  
(organic electroluminescent component)

L12 ANSWER 14 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:68588 HCAPLUS

DOCUMENT NUMBER: 134:280890

TITLE: Synthesis and Characterization of a Sterically Encumbered Unsymmetrical 9-Borfluorene, Its Pyridine Adduct, and Its Dilithium Salt  
AUTHOR(S): Wehmschulte, Rudolf J.; Khan, Masood A.; Twamley, Brendan; Schiemenz, Berthold  
CORPORATE SOURCE: Department of Chemistry and Biochemistry, University of Oklahoma, Norman, OK, 73019, USA  
SOURCE: Organometallics (2001), 20(5), 844-849  
CODEN: ORGND7; ISSN: 0276-7333

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 134:280890

AB The reaction of 2,6-(4-*t*-BuC<sub>6</sub>H<sub>4</sub>)<sub>2</sub>C<sub>6</sub>H<sub>3</sub>Li with [BH<sub>2</sub>Cl.SMe<sub>2</sub>] in hexane or Et<sub>2</sub>O solution affords the terphenyl-substituted unsym. 9-borfluorene, 1-(4-*tert*-Butylphenyl)-7-*tert*-butyl-9-[2,6-bis(4-*tert*-butylphenyl)phenyl]-9-borfluorene (1), in good to moderate yields. Addition of pyridine gives the colorless crystalline adduct 1.py. Compound 1 is readily reduced to the deep red heteroarom. dianionic ( $\mu$ -2- $\eta$ 5, $\eta$ 5-1-(4-*tert*-butylphenyl)-7-*tert*-butyl-9-[2,6-bis(4-*tert*-butylphenyl)phenyl]-9-borfluorenyl)bis(Et<sub>2</sub>O)dilithium (2) with excess Li powder in Et<sub>2</sub>O solution. Reactions of the dianionic 2 with various metal salts leads to reduction of these salts, and bright yellow 1 is recovered in essentially quant. yields. Compds. 1, 1.py, and 2 were characterized by <sup>1</sup>H, <sup>13</sup>C, and <sup>11</sup>B NMR spectroscopy and compds. 1.py and 2 also by single-crystal x-ray diffraction.

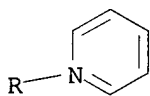
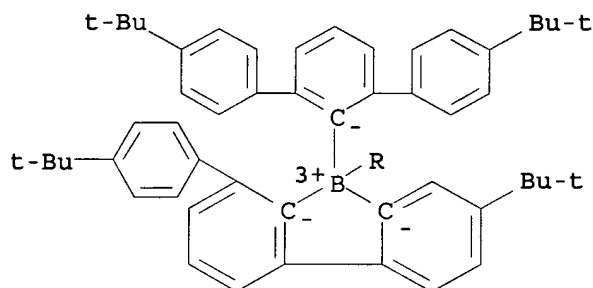
IT 332104-79-7P 332104-81-1P  
(preparation and crystal structure of)



RN 332104-79-7 HCAPLUS  
 CN Boron, [4,4''-bis(1,1-dimethylethyl) [1,1':3',1''-terphenyl]-2,2'-diyl] [4,4''-bis(1,1-dimethylethyl) [1,1':3',1''-terphenyl]-2'-yl] (pyridine)-, (T-4)-, compd. with hexane (8:1) (9CI) (CA INDEX NAME)

CM 1

CRN 332104-78-6  
 CMF C57 H62 B N  
 CCI CCS



CM 2

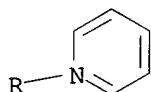
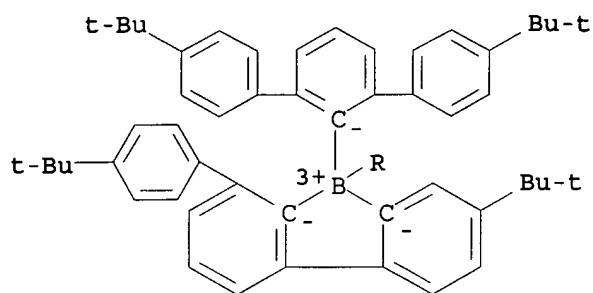
CRN 110-54-3  
 CMF C6 H14

Me- (CH<sub>2</sub>)<sub>4</sub>-Me

RN 332104-81-1 HCAPLUS  
 CN Boron, [4,4''-bis(1,1-dimethylethyl) [1,1':3',1''-terphenyl]-2,2'-diyl] [4,4''-bis(1,1-dimethylethyl) [1,1':3',1''-terphenyl]-2'-yl] (pyridine)-, (T-4)-, compd. with hexane (2:1) (9CI) (CA INDEX NAME)

CM 1

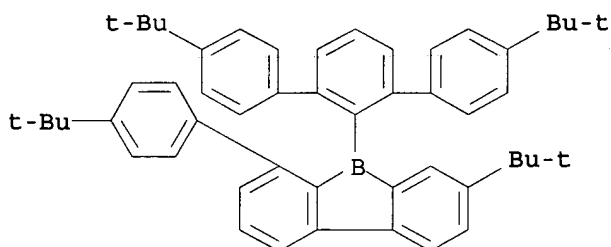
CRN 332104-78-6  
 CMF C57 H62 B N  
 CCI CCS



CMF C6 H14

$$\text{Me}-(\text{CH}_2)_4-\text{Me}$$

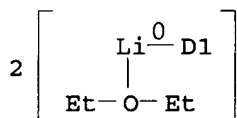
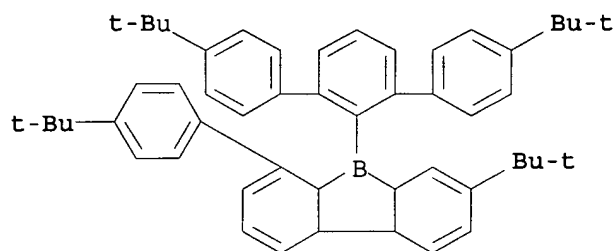
CN 5H-Dibenzoborole, 5-[4,4''-bis(1,1-dimethylethyl)[1,1':3',1''-terphenyl]-2'-yl]-3-(1,1-dimethylethyl)-6-[4-(1,1-dimethylethyl)phenyl]- (9CI) (CA INDEX NAME)



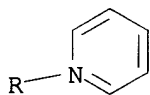
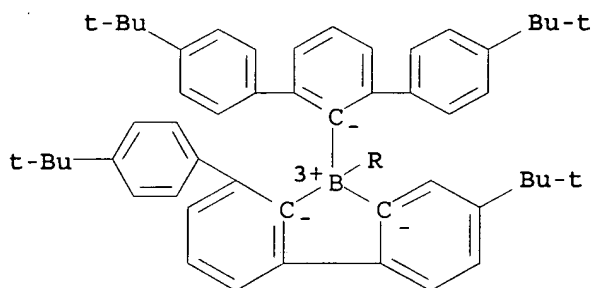
CN    Lithium, [μ-[5-[4,4''-bis(1,1-dimethylethyl)[1,1':3',1''-terphenyl]-2'-yl]-3-(1,1-dimethylethyl)-6-[4-(1,1-dimethylethyl)phenyl]-5H-dibenzoborole-diyl]]bis[1,1'-oxybis[ethane]]di- (9CI)    (CA INDEX NAME)

CM 1

CRN 332342-54-8  
 CMF C60 H79 B Li2 O2  
 CCI CCS, IDS



IT 332104-78-6P  
 (preparation, mol. structure, and dissociation constant for loss of  
 pyridine from)  
 RN 332104-78-6 HCAPLUS  
 CN Boron, [4,4''-bis(1,1-dimethylethyl) [1,1':3',1''-terphenyl]-2,2'-  
 diyl] [4,4''-bis(1,1-dimethylethyl) [1,1':3',1''-terphenyl]-2'-  
 yl] (pyridine)-, (T-4)- (9CI) (CA INDEX NAME)



CC 29-4 (Organometallic and Organometalloidal Compounds)  
 Section cross-reference(s): 75  
 IT 332104-79-7P 332104-81-1P  
 (preparation and crystal structure of)  
 IT 332104-77-5P, 1-(4-tert-Butylphenyl)-7-tert-butyl-9-[2,6-  
 bis(4-tert-butylphenyl)phenyl]-9-borfluorene  
 (preparation and reduction to heteroarom. dianionic derivative)  
 IT 332342-55-9P  
 (preparation, crystal structure, and reaction with metal salts)

IT 332104-78-6P

(preparation, mol. structure, and dissociation constant for loss of pyridine from)

REFERENCE COUNT: 44 THERE ARE 44 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L12 ANSWER 15 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:37486 HCAPLUS

DOCUMENT NUMBER: 134:187473

TITLE: Hydridoborates and hydridoborato metallates  
part 26. Preparation and structures of  
dihydridoborates of lithium and potassium

AUTHOR(S): Knizek, Jorg; Noth, Heinrich

CORPORATE SOURCE: Department of Chemistry, Inorganic Chemistry,  
University of Munich, Munich, D-81377, Germany

SOURCE: Journal of Organometallic Chemistry (2000),  
614-615, 168-187

CODEN: JORCAI; ISSN: 0022-328X

PUBLISHER: Elsevier Science S.A.

DOCUMENT TYPE: Journal

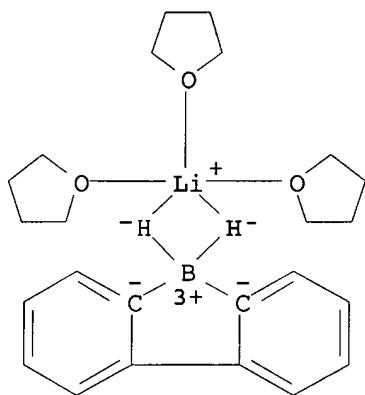
LANGUAGE: English

OTHER SOURCE(S): CASREACT 134:187473

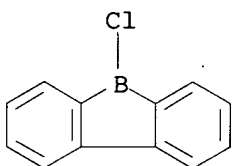
AB Alkali metal dihydrido borates were prepared by three different routes. They were characterized by  $^{11}\text{B}$ -NMR spectroscopy and, in part, by IR spectroscopy. The following compds. were obtained: lithium dihydridodimethylborate and lithium methyltrihydridoborate, (1) and (2), lithium and potassium dihydridodi(tert-butyl)borate, (3) and (4), lithium dihydridodi(cyclopentyl)borate (5), lithium and potassium dihydrido(9-boratabicyclo[3.3.0]nonane), (6a,b), potassium dihydrido(boratacyclohexane) (7), lithium dihydridoboratacycloheptane (8), and lithium dihydrido-9-boratafluorene (9). In the process of the formation of 1 and 7 also  $\text{Li}(\text{H}_3\text{BMe})$  (2) and  $\text{Li}_2(\text{H}_3\text{B}-(\text{CH}_2)_5-\text{BH}_3)$  are formed, most likely by a ligand redistribution process which is not operative if bulky organyl groups are bound to the boron atom or if the boron atom is part of a ring system. In case of catecholate no  $\text{H}_2\text{B}(\text{OR})_2^-$  anions were detected but for ephedrino or dithiolato ligands the corresponding dihydrido borate complexes were readily detected by  $^{11}\text{B}$ -NMR but the latter converted in THF solution into  $\text{B}(\text{S}_2\text{R}')_2$  anions. MO calcns. show that the ligand redistribution for  $\text{H}_2\text{BX}_2^-$  ions into  $\text{BH}_4^-$  and  $\text{BX}_4^-$  becomes thermodynamically more favored with increasing electronegativity of the substituent X. Characterization of the new hydrido borate species is usually unambiguous, but  $\text{Li}[\text{H}_2\text{BO}(\text{C}_6\text{H}_4)_2]$  (10) shows an anomalous temperature dependent behavior in THF solution which can be attributed to an equilibrium involving  $\text{Li}(2\text{H}, 2\text{O})$ ,  $\text{Li}(2\text{H}, 3\text{O})$ , and  $\text{Li}(3\text{O})$  structural units. This is supported by the x-ray structure of dimeric  $10 \cdot \text{THF}$  and monomeric  $10 \cdot \text{THF} \cdot \text{TMEDA}$ . While  $9 \cdot 3\text{THF}$  is monomeric and contains doubly bridging  $\text{H}_2\text{B}$  groups, all other dihydrido diorganyl borates are dinuclear. The interaction between the alkali metal center and the boron bonded H atoms depends on number and size of the auxiliary ligands. Agostic  $\text{Li} \dots \text{H}-\text{C}$  interactions play a role if  $\beta$ -H atoms are present and when the alkali metal cation is not coordinatively saturated by the auxiliary ligand and the  $\text{H}(\text{B})$  hydrogens. The most sym. and so far unique arrangement is found for  $[\text{6a} \cdot 2\text{THF}]_2$  where all four  $\text{H}(\text{B})$  hydrogens form  $\text{Li} \dots \text{H} \dots \text{Li}$  bridges. Also lithium bis(dithiocatecholato)borate,  $17 \cdot 2\text{THF}$  is dimeric. Its Li

centers are coordinated by four sulfur and two oxygen atoms. These atoms form a double heterocubane structure with two diametral edges missing.

IT 326500-96-3P  
(preparation and crystal and mol. structure)  
RN 326500-96-3 HCAPLUS  
CN Lithium, [[1,1'-biphenyl]-2,2'-diyldihydroborato(1-)]tris(tetrahydrofuran)- (9CI) (CA INDEX NAME)



IT 13059-59-1, 9-Chloro-9-borafluorene  
(reactant for preparation of alkali metal dihydridoborate complexes)  
RN 13059-59-1 HCAPLUS  
CN 5H-Dibenzoborole, 5-chloro- (7CI, 8CI, 9CI) (CA INDEX NAME)



CC 78-7 (Inorganic Chemicals and Reactions)  
Section cross-reference(s): 29, 75  
IT 326500-91-8P 326500-92-9P 326500-96-3P 326500-98-5P  
326501-02-4P 326501-04-6P 326501-05-7P  
(preparation and crystal and mol. structure)  
IT 110-18-9, Tmeda 120-80-9, Catechol, reactions 142-29-0,  
Cyclopentene 540-63-6, 1,2-Ethanedithiol 592-42-7,  
1,5-Hexadiene 3030-47-5, Pmdta 5158-50-9, Bromodimethylborane  
7580-67-8, Lithium hydride (LiH) 7693-26-7, Potassium hydride  
(KH) 13059-59-1, 9-Chloro-9-borafluorene 13283-31-3,  
Borane, reactions 16949-15-8, Lithium borohydride (LiBH<sub>4</sub>)  
17534-15-5, 1,2-Benzenedithiol 19091-73-7 21205-91-4,  
9-Borabicyclononane dimer 81175-90-8, Chlorodi(tert-butyl)borane  
201858-00-6  
(reactant for preparation of alkali metal dihydridoborate complexes)  
REFERENCE COUNT: 41 THERE ARE 41 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L12 ANSWER 16 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

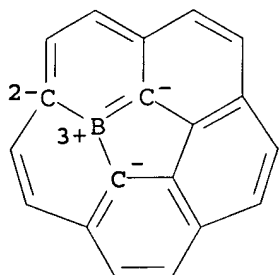
ACCESSION NUMBER: 2000:893718 HCAPLUS  
DOCUMENT NUMBER: 134:295428  
TITLE: The role of heteroatom substitution in the rigidity and curvature of buckybowls. A theoretical study  
AUTHOR(S): Sastry, G. Narahari; Priyakumar, U. Deva  
CORPORATE SOURCE: Department of Chemistry, Pondicherry University, Pondicherry, 605 014, India  
SOURCE: Journal of the Chemical Society, Perkin Transactions 2 (2001), (1), 30-40  
CODEN: JCSPGI; ISSN: 1472-779X  
PUBLISHER: Royal Society of Chemistry  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Ab initio (Hartree Fock), hybrid d. functional (B3LYP), and semiempirical SCF (MNDO and AM1) calcns. on sumanene (I), trioxa-sumanene and trithia-sumanene show that the C3v-bowl structure is a min. in all cases, but show dramatic variations in bowl depths and inversion barriers. Calcns. on monosubstituted corannulenes C19XH10 (X = N+, B-, P+ and Si) at various levels predict that isoelectronic substituents possessing large atomic size increase the bowl-to-bowl inversion barrier at the hub position and decrease it at the rim position. Strain is a guiding factor, which accounts for the relative stability of positional isomers, curvature and bowl rigidity. The most stable positional isomer for a given substituent shows the min. bowl-to-bowl inversion barrier in all cases. Calcns. are performed on monosubstituted sumanenes derived by replacing skeletal C by isoelectronic atoms on I, C20XH12 for X = N+ and Si. The general strategy of substituting larger atoms at rim positions flattens the bowl, and at the hub position it makes the bowl deeper. The strategy seems to work well. HF/3-21G and B3LYP/6-31G\* computations are in very good agreement with each other, both qual. and quant., and the central results are reproducible even at semiempirical levels. The performance of MNDO is consistently better than AM1 and becomes the method of choice when ab initio and DFT methods are not practical. Homodesmic equations, used to ascertain the thermodyn. stabilities of the monosubstitutions on corannulenes and sumanenes, show that substitution at appropriate sites imparts stability to the buckybowl framework. Linear correlation is obtained between the curvature, as estimated by the pyramidalization angle ( $\Phi$ ), and the inversion barrier. It is shown that bowl rigidity, curvature and the relative stabilities of positional isomers are controlled by the strain energy build up, which depends on the size of the substituent and the site of substitution.

IT 285571-27-9  
(effect of heteroatom substitution on rigidity and curvature of buckybowls)

RN 285571-27-9 HCAPLUS

CN Borate(1-), 3,6-[1,4]pentadiene[1,5]diylphenanthrene-4,5-diyl-13-ylidene- (9CI) (CA INDEX NAME)



CC 22-2 (Physical Organic Chemistry)

Section cross-reference(s): 25

IT 5821-51-2, Corannulene 151253-59-7, Sumanene 251991-63-6  
 260353-02-4 285571-27-9 285571-28-0 285571-29-1  
 285571-30-4, 10b-Siladibenzo[ghi,mno]fluoranthene 285571-31-5  
 285571-32-6 285571-33-7 285571-34-8, 2a-  
 Siladibenzo[ghi,mno]fluoranthene 285571-35-9 285571-36-0  
 285571-37-1 285571-38-2, Benzo[6,7]fluorantheno[1,10-bcd]silin  
 334541-82-1 334541-83-2 334541-84-3 334541-85-4  
 334541-86-5 334541-87-6 334541-88-7 334541-89-8  
 (effect of heteroatom substitution on rigidity and curvature of  
 buckybowls)

REFERENCE COUNT: 65 THERE ARE 65 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE  
 IN THE RE FORMAT

L12 ANSWER 17 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:851558 HCAPLUS

DOCUMENT NUMBER: 134:163087

TITLE: New Fluorinated 9-Borafluorene Lewis Acids

AUTHOR(S): Chase, Preston A.; Piers, Warren E.; Patrick,  
 Brian O.

CORPORATE SOURCE: Department of Chemistry, University of  
 Calgary, Calgary, AB, T2N 1N4, Can.

SOURCE: Journal of the American Chemical Society  
 (2000), 122(51), 12911-12912  
 CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 134:163087

AB The synthesis of the fluorinated biphenyl-based borole derivs.  
 (C12F8)B-R [R = CH3 (1a), C6F5 (1b), Br (1c)] and demonstrate  
 their enhanced Lewis acidity relative to the more heavily  
 fluorinated (C6F5)2B-R analogs is reported. Thus, lithiation of  
 C12F8Br2 with BuLi followed by treatment with Me2SnCl2 in Et2O  
 gave 80% C12F8SnMe2 which on treatment with BBr3 gave 77% C12F8BBr  
 1c. Reaction of 1c with Cp2ZrMe2 gave 1a, whereas reaction of  
 C12F8SnMe2 with Cl2BC6F5 gave 1b. 1a and 1b reacted with Cp2ZrMe2  
 to give contact ion pairs. The crystal structure of 1b and  
 contact ion pair of 1a with Cp2ZrMe2 is determined. The activation of  
 metallocene catalysts by 1a and 1b for ethylene polymerization and MNDO  
 calcs. for Lewis acidity of 1a and 1b and related derivs. is also  
 reported.

IT 324766-71-4P  
 (preparation and crystal structure of)

RN 324766-71-4 HCAPLUS

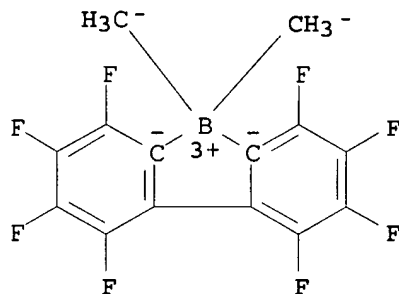
CN Zirconium(1+), bis( $\eta^5$ -2,4-cyclopentadien-1-yl)methyl-,  
(T-4)-dimethyl(3,3',4,4',5,5',6,6'-octafluoro[1,1'-biphenyl]-2,2'-  
diyl)borate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 324766-70-3

CMF C14 H6 B F8

CCI CCS

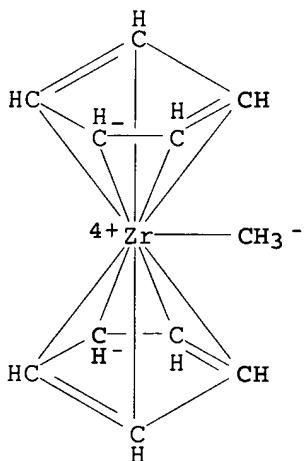


CM 2

CRN 94370-49-7

CMF C11 H13 Zr

CCI CCS



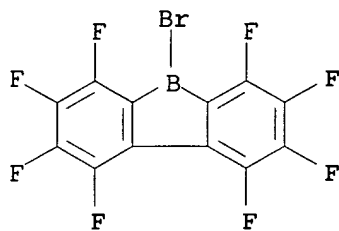
IT 324766-57-6P

(preparation and methylation of)

RN 324766-57-6 HCAPLUS

CN 5H-Dibenzoborole, 5-bromo-1,2,3,4,6,7,8,9-octafluoro- (9CI) (CA  
INDEX NAME)





IT 324766-79-2P

(preparation of)

RN 324766-79-2 HCAPLUS

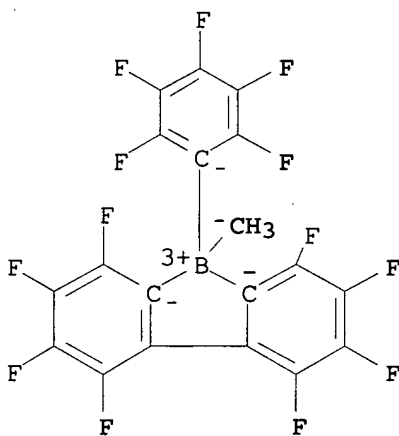
CN Zirconium(1+), bis(η<sup>5</sup>-2,4-cyclopentadien-1-yl)methyl-,  
(T-4)-methyl(3,3',4,4',5,5',6,6'-octafluoro[1,1'-biphenyl]-2,2'-  
diyl)(pentafluorophenyl)borate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 324766-78-1

CMF C19 H3 B F13

CCI CCS

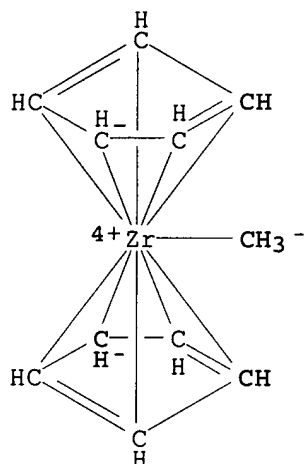


CM 2

CRN 94370-49-7

CMF C11 H13 Zr

CCI CCS

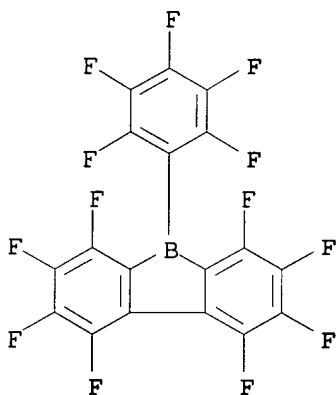


IT 324766-65-6P

(preparation, crystal structure, preparation of contact ion pair with dimethylzirconocene, MNDO calcn., and ethylene polymerization cocatalysis with)

RN 324766-65-6 HCAPLUS

CN 5H-Dibenzoborole, 1,2,3,4,6,7,8,9-octafluoro-5-(pentafluorophenyl)- (9CI) (CA INDEX NAME)

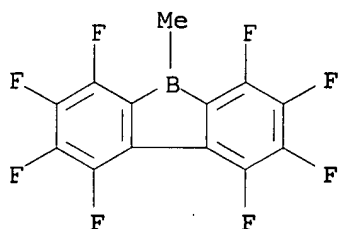


IT 324766-61-2P

(preparation, preparation of contact ion pair with dimethylzirconocene, MNDO calcn., and ethylene polymerization cocatalysis with)

RN 324766-61-2 HCAPLUS

CN 5H-Dibenzoborole, 1,2,3,4,6,7,8,9-octafluoro-5-methyl- (9CI) (CA INDEX NAME)



CC 29-4 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 22, 35, 75

IT 324766-71-4P

(preparation and crystal structure of)

IT 324766-57-6P

(preparation and methylation of)

IT 9002-88-4P, Polyethylene 324766-79-2P

(preparation of)

IT 324766-65-6P

(preparation, crystal structure, preparation of contact ion pair with dimethylzirconocene, MNDO calcn., and ethylene polymerization cocatalysis with)

IT 324766-61-2P

(preparation, preparation of contact ion pair with dimethylzirconocene, MNDO calcn., and ethylene polymerization cocatalysis with)

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L12 ANSWER 18 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:295981 HCAPLUS

DOCUMENT NUMBER: 133:120386

TITLE: Effect of substitution on the curvature and  
bowl-to-bowl inversion barrier of bucky-bowls.  
Study of mono-substituted corannulenes  
(C19XH10, X = B-, N+, P+ and Si)

AUTHOR(S): Sastry, G. Narahari; Prakash Rao, H. Surya;  
Priyakumar, U. Deva; Bednarek, Pawel

CORPORATE SOURCE: Dep. Chem., Pondicherry Univ., Pondicherry,  
605014, India

SOURCE: Chemical Communications (Cambridge) (2000),  
(10), 843-844

CODEN: CHCOFS; ISSN: 1359-7345

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

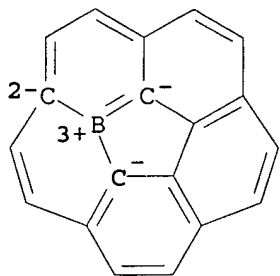
AB Ab initio MO and DFT calcns. predict that replacement of a single  
carbon by an isoelectronic species on the corannulene skeleton can  
effectively arrest the bowl shape or flatten it and the bowl  
rigidity, curvature and relative stabilities of the positional  
isomers are solely controlled by the size of the substituent and  
site of substitution.

IT 285571-27-9

(effect of substitution on curvature and bowl-to-bowl inversion  
barrier of bucky-bowls and study of mono-substituted bora-,  
aza-, phospho-, and sila-corannulenes)

RN 285571-27-9 HCAPLUS

CN Borate(1-), 3,6-[1,4]pentadiene[1,5]diylphenanthrene-4,5-diyl-13-  
ylidene- (9CI) (CA INDEX NAME)



CC 29-7 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 22

IT 285571-27-9 285571-28-0 285571-29-1 285571-30-4,  
 10b-Siladibenzo[ghi,mno]fluoranthene 285571-31-5 285571-32-6  
 285571-33-7 285571-34-8, 2a-Siladibenzo[ghi,mno]fluoranthene  
 285571-35-9 285571-36-0 285571-37-1 285571-38-2,  
 Benzo[6,7]fluorantheno[1,10-bcd]silin  
 (effect of substitution on curvature and bowl-to-bowl inversion  
 barrier of bucky-bowls and study of mono-substituted bora-,  
 aza-, phospho-, and sila-corannulenes)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE  
 IN THE RE FORMAT

L12 ANSWER 19 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1999:566086 HCAPLUS

DOCUMENT NUMBER: 131:200269

TITLE: Metallocene catalysts for the polymerization  
 of olefins

INVENTOR(S): Bohnen, Hans; Fritze, Cornelia; Kuber, Frank

PATENT ASSIGNEE(S): Targor GmbH, Germany

SOURCE: PCT Int. Appl., 38 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9943717	A1	19990902	WO 1999-EP956	1999 0213
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DE 19808253	A1	19990902	DE 1998-19808253	1998 0227
<--				
EP 1058694	A1	20001213	EP 1999-911664	1999 0213
<--				

EP 1058694 B1 20030409  
 R: DE, ES, FR, GB, IT, NL  
 JP 2002504596 T2 20020212 JP 2000-533466  
 1999  
 0213  
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 ES 2194449 T3 20031116 ES 1999-911664  
 1999  
 0213  
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 US 6391989 B1 20020521 US 2000-622417  
 2000  
 0816  
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 PRIORITY APPLN. INFO.: DE 1998-19808253 A  
 1998  
 0227  
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 WO 1999-EP956 W  
 1999  
 0213  
 <--

## OTHER SOURCE(S): MARPAT 131:200269

AB The title catalysts, which have the advantages of bulky ligands without the disadvantages of bulky aryl ligands, comprise complexes of Group IA, IIA, or IIIA metals with biphenyl derivs. of specified structure, metallocenes, and supports. Stirring 10 mmol 2,2'-dibromooctafluorobiphenyl (prepared by coupling 1,2-dibromotetrafluorobenzene with BuLi-TiCl<sub>4</sub>) with 8 mL 2M BuLi in Et<sub>2</sub>O at -78°, adding 5 mL 1M BCl<sub>3</sub>, warming to room temperature, stripping solvent in vacuo, adding pentane and 0.79 g PhNMe<sub>2</sub>.HCl, and stirring for 5 h gave N,N-dimethylanilinium bis(2,2'-octafluorobiphenyl)borate (I). Stirring 7.3 mg I, 5.9 mg dimethylsilylenebis(2-methyl-4-phenylindenyl)dimethylzirconium, and 1 g SiO<sub>2</sub> in PhMe and drying in vacuo gave a supported catalyst. Stirring 1.5 L liquid C<sub>3</sub>H<sub>6</sub> with 3 mL 20% iso-Bu<sub>3</sub>Al and the above catalyst at 60° for 1 h gave 214 g powdered polypropylene (37 kg/g metallocene-h).

IT 240419-12-9 240419-14-1

(metallocene catalysts for the polymerization of olefins)

RN 240419-12-9 HCAPLUS

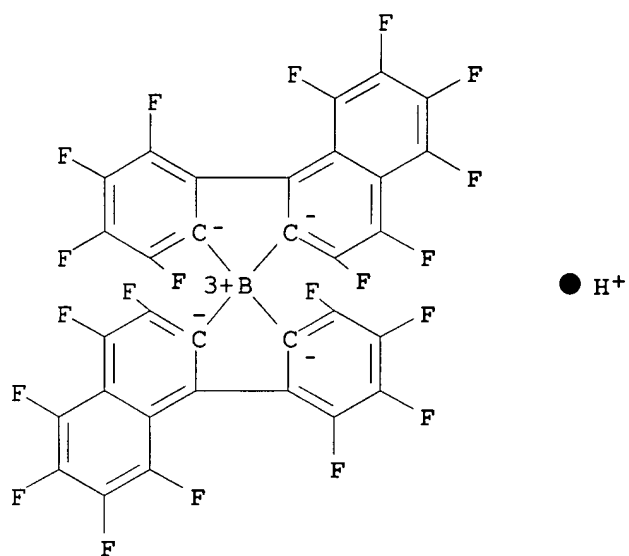
CN Borate(1-), bis[(3,4,5,6,7,8-hexafluoro-2,1-naphthalenediyl)(3,4,5,6-tetrafluoro-1,2-phenylene)]-, (T-4)-, hydrogen, compd. with N,N-dimethylbenzenamine (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 240419-11-8

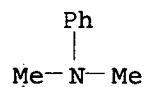
CMF C32 B F20 . H

CCI CCS



CM 2

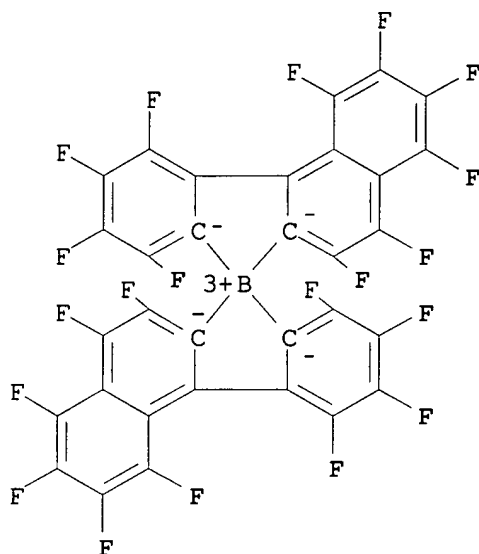
CRN 121-69-7  
CMF C8 H11 N



RN	240419-14-1	HCAPLUS
CN	Methylum, triphenyl-, (T-4)-bis[(3,4,5,6,7,8-hexafluoro-2,1-naphthalenediyl) (3,4,5,6-tetrafluoro-1,2-phenylene)]borate(1-)	
	(9CI)	(CA INDEX NAME)

CM 1

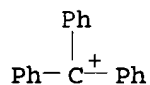
CRN 240419-13-0  
CMF C32 B F20  
CCI CCS



CM 2

CRN 13948-08-8

CMF C19 H15



IT 238096-43-0P 238096-45-2P

(metallocene catalysts for the polymerization of olefins)

RN 238096-43-0 HCAPLUS

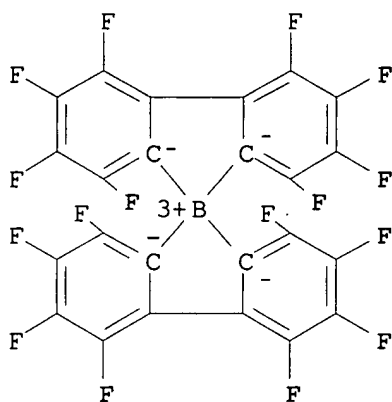
CN Borate(1-), bis(3,3',4,4',5,5',6,6'-octafluoro[1,1'-biphenyl]-2,2'-diyl)-, (T-4)-, hydrogen, compd. with N,N-dimethylbenzenamine (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 238096-42-9

CMF C24 B F16 . H

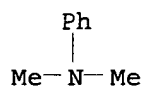
CCI CCS



CM 2

CRN 121-69-7

CMF C8 H11 N



RN 238096-45-2 HCAPLUS

CN Methylium, triphenyl-, (T-4)-bis(3,3',4,4',5,5',6,6'-octafluoro[1,1'-biphenyl]-2,2'-diyl)borate(1-) (9CI) (CA INDEX NAME)

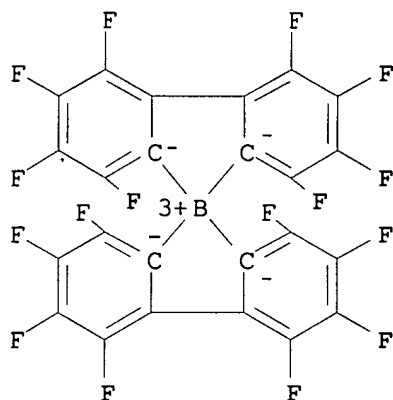
CM 1

CRN 238096-44-1

CMF C24 B F16

CCI CCS

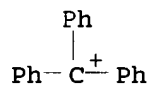




CM 2

CRN 13948-08-8

CMF C19 H15



IC ICM C08F004-643

ICS C08F010-06

CC 35-3 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 67

IT 1291-32-3 73364-10-0 119445-92-0 119821-97-5 135072-61-6

135571-35-6 135571-36-7 143278-90-4 143278-92-6

149342-08-5 152071-12-0 152881-64-6 152881-65-7

152881-66-8 152881-67-9 158238-79-0 158238-80-3

158515-16-3 161442-55-3 162426-41-7 162426-43-9

162857-08-1 163403-18-7 166601-14-5 167021-59-2

167254-77-5 168466-11-3 168749-19-7 168749-20-0

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177991-18-3 187541-23-7 205745-71-7 205745-72-8

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213381-94-3 213468-18-9 213922-27-1 238414-71-6

238414-72-7 238414-73-8 238414-74-9 238414-75-0

238414-76-1 238414-77-2 238414-81-8 238414-82-9

238414-83-0 238414-84-1 238414-87-4 238414-90-9

238414-92-1 238414-99-8 238415-03-7 238415-05-9

238415-07-1 238415-09-3 238415-11-7 238415-13-9

238415-15-1 238415-17-3 238415-18-4 238415-19-5

238415-20-8 238415-21-9 238415-23-1 238415-24-2

238432-64-9 238432-65-0 238432-66-1 238432-67-2

238432-68-3 238432-69-4 238432-70-7 238432-71-8

240419-12-9 240419-14-1 240419-17-4

240489-10-5

(metallocene catalysts for the polymerization of olefins)

IT 238096-43-0P 238096-45-2P 240419-08-3P

240419-10-7P

(metallocene catalysts for the polymerization of olefins)

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE

FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L12 ANSWER 20 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1999:566055 HCAPLUS  
 DOCUMENT NUMBER: 131:170472  
 TITLE: Compounds having an ionic structure used as  
 constituent of an olefin polymerization  
 catalyst  
 INVENTOR(S): Bohnen, Hans; Fritze, Cornelia; Kuber, Frank  
 PATENT ASSIGNEE(S): Targor GmbH, Germany  
 SOURCE: PCT Int. Appl., 22 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9943685	A1	19990902	WO 1999-EP957	1999 0213

&lt;--

W: BR, CN, JP, KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU,				
MC, NL, PT, SE				
DE 19808254	A1	19990902	DE 1998-19808254	1998 0227

&lt;--

EP 1058685	A1	20001213	EP 1999-908893	1999 0213
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&lt;--

EP 1058685	B1	20030528		
R: DE, ES, FR, GB, IT, NL				
JP 2002504556	T2	20020212	JP 2000-533438	1999 0213

&lt;--

ES 2201679	T3	20040316	ES 1999-908893	1999 0213
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US 6437187	B1	20020820	US 2000-622418	2000 0816
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PRIORITY APPLN. INFO.:		DE 1998-19808254	A	1998 0227
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&lt;--

WO 1999-EP957	W	1999 0213
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&lt;--

OTHER SOURCE(S): CASREACT 131:170472; MARPAT 131:170472  
 AB The invention relates to chemical compds. having an ionic structure,

[M1Q1xQ2yQ3z]-A+ (M1 = group IIA, IIIA, IVA, VA element, x, y, z = 0-1, A = cation of group IA, IIA, IIIA element, carbenium, oxonium, phosphonium, sulfonium cation, Q = biphenyl ligand compds.), which in combination with an organometallic transition compound form a catalyst system which can advantageously be used to polymerize olefins. Thus, lithiation of 2,2'-dibromooctafluorobiphenyl with BuLi in Et2O followed by sequential treatment with BCl3 and N,N-dimethylanilinium chloride gave title compound, N,N-dimethylanilinium bis(2,2'-octafluorobiphenyl)borate.

IT 238096-43-0P 238096-45-2P

(preparation of compds. having ionic structure used as constituent of olefin polymerization catalyst)

RN 238096-43-0 HCAPLUS

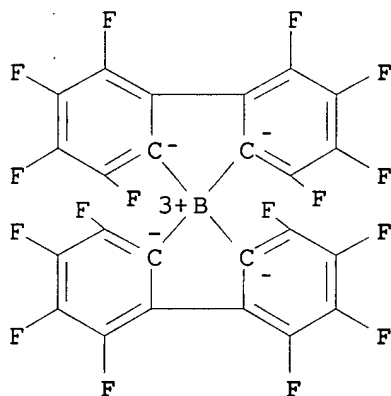
CN Borate(1-), bis(3,3',4,4',5,5',6,6'-octafluoro[1,1'-biphenyl]-2,2'-diyl)-, (T-4)-, hydrogen, compd. with N,N-dimethylbenzenamine (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 238096-42-9

CMF C24 B F16 . H

CCI CCS

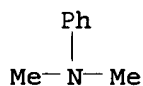


● H<sup>+</sup>

CM 2

CRN 121-69-7

CMF C8 H11 N



RN 238096-45-2 HCAPLUS

CN Methylium, triphenyl-, (T-4)-bis(3,3',4,4',5,5',6,6'-octafluoro[1,1'-biphenyl]-2,2'-diyl)borate(1-) (9CI) (CA INDEX

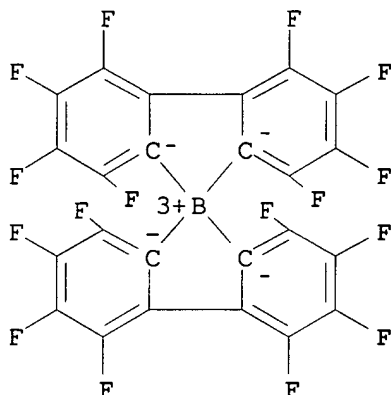
NAME)

CM 1

CRN 238096-44-1

CMF C24 B F16

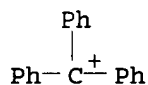
CCI CCS



CM 2

CRN 13948-08-8

CMF C19 H15



IC ICM C07F005-02

ICS C07F009-6568; C08F010-00

CC 29-4 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 35

IT 238096-43-0P 238096-45-2P 238096-46-3P

238096-47-4P

(preparation of compds. having ionic structure used as constituent of olefin polymerization catalyst)

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L12 ANSWER 21 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1997:597429 HCAPLUS

DOCUMENT NUMBER: 127:266902

TITLE: Co-carbonization of 9-chloroborfluorene and pitch; synthesis of B/C materials

AUTHOR(S): Hu, Raymond; Chung, T. C.

CORPORATE SOURCE: Department of Materials Science and Engineering, The Pennsylvania State University, University Park, PA, 16802, USA

SOURCE: Carbon (1997), 35(8), 1101-1109

CODEN: CRBNAH; ISSN: 0008-6223

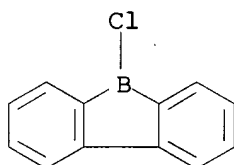
PUBLISHER: Elsevier  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB This paper is a continuation of our research efforts in the development of boron containing carbon (B/C) materials. The chemical is based on the co-carbonization reaction between 9-chloroboratrafluorene precursor and FCC decant oil pitch. By adding small amts. of 9-chloroboratrafluorene, the yield of low temperature anisotropic carbon from the com. pitch was dramatically improved. This simple and effective method results in a broad range of B/C materials. In addition, the co-carbonization reaction provides direct evidence of boron-enhanced graphitization and the effect of boron content on crystal growth. In general, the graphitization temperature of pitch can be lowered by several hundred degrees by incorporating small amts. of boron precursor, and a large crystal size with low d-spacing, similar to Sp-1 graphite, is obtained at 2300°C.

IT 13059-59-1  
(synthesis of boron-containing carbon materials by co-carbonization of 9-chloroboratrafluorene and pitch)

RN 13059-59-1 HCAPLUS

CN 5H-Dibenzoborole, 5-chloro- (7CI, 8CI, 9CI) (CA INDEX NAME)



CC 57-8 (Ceramics)

IT 13059-59-1  
(synthesis of boron-containing carbon materials by co-carbonization of 9-chloroboratrafluorene and pitch)

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L12 ANSWER 22 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1997:467602 HCAPLUS

DOCUMENT NUMBER: 127:88071

TITLE: Borate photoinitiator from monoborane for photocurable material

INVENTOR(S): Cunningham, Allan Francis; Kunz, Martin; Kura, Hisatoshi

PATENT ASSIGNEE(S): Ciba-Geigy A.-G., Switz.

SOURCE: Ger. Offen., 61 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19648256	A1	19970528	DE 1996-19648256	1996

				1121
			<--	
TW 467933	B	20011211	TW 1996-85113755	
				1996
				1111
			<--	
CH 691775	A	20011015	CH 1996-2824	
				1996
				1114
			<--	
AU 9671792	A1	19970529	AU 1996-71792	
				1996
				1115
			<--	
AU 712075	B2	19991028		
FR 2741624	A1	19970530	FR 1996-14200	
				1996
				1121
			<--	
FR 2741624	B1	19981204		
US 5932393	A	19990803	US 1996-755771	
				1996
				1121
			<--	
NL 1004599	A1	19970527	NL 1996-1004599	
				1996
				1122
			<--	
NL 1004599	C2	19980112		
GB 2307472	A1	19970528	GB 1996-24328	
				1996
				1122
			<--	
GB 2307472	B2	19991117		
CN 1159450	A	19970917	CN 1996-121744	
				1996
				1122
			<--	
BE 1010765	A5	19990105	BE 1996-980	
				1996
				1122
			<--	
ES 2126500	A1	19990316	ES 1996-2465	
				1996
				1122
			<--	
ES 2126500	B1	19991116		
AT 9602042	A	20000115	AT 1996-2042	
				1996
				1122
			<--	
AT 406777	B	20000925		
SG 49990	A1	20010116	SG 1996-11378	
				1996
				1122
			<--	
JP 09188710	A2	19970722	JP 1996-329222	
				1996
				1125
			<--	

BR 9605696	A	19980818	BR 1996-5696	1996 1125
			<--	
US 6045974	A	20000404	US 1999-247147	1999 0209
			<--	
PRIORITY APPLN. INFO.:		CH 1995-3344	A	1995 1124
			<--	
		US 1996-755771	A3	1996 1121
			<--	

OTHER SOURCE(S): MARPAT 127:88071

AB A photopolymerizable composition contains the borate photoinitiator [R1R2R3R4B]-.G+ or R2R3R4B-R1aE+ (R1, R2, R3 = Ph, aromatic hydrocarbyl with(out) heteroatom; R2 and R3 may form fused rings; R1a = divalent hydrocarbyl, Ph-Cl-6-alkylene; G = pos. ion forming residue; E = R21R22R23P, R7R7aR8N, R6R6aS; R21, R22, R23 = C1-12-alkyl, C2-12-alkenyl, C3-12-cycloalkyl; R7, R7a, R8 = C1-12-alkyl, C3-12-cycloalkyl, Ph-Cl-6-alkyl, Ph; R6, R6a = C1-12-alkyl, Ph-Cl-6-alkyl, Ph) and a polymerizable ethylenic unsatd. compound. The photoinitiator may be used in coatings, printing inks, printing plates, dental materials, resist materials, stereolithog. materials, holog. recording materials, etc.

IT 191876-43-4P

(preparation of borate photoinitiator from borane)

RN 191876-43-4 HCAPLUS

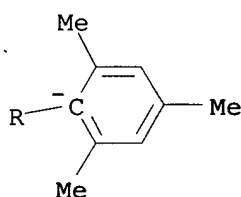
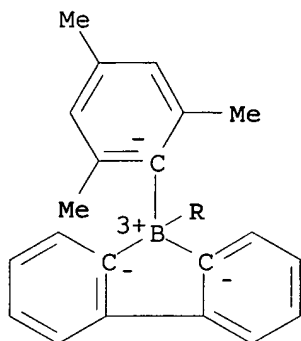
CN Methanaminium, N,N,N-trimethyl-, (T-4)-[1,1'-biphenyl]-2,2'-diylbis(2,4,6-trimethylphenyl)borate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 191876-42-3

CMF C30 H30 B

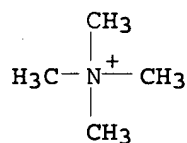
CCI CCS



CM 2

CRN 51-92-3

CMF C4 H12 N



IC ICM C08F002-46  
 ICS C08F004-52; C07F005-02; C09J011-06; C08K005-55; C09B069-06;  
 C09D004-00; C09D201-02; C09D005-46; C09D011-10; A61K006-00;  
 G03F007-028

ICA C09D007-12; C09B011-28; C09B023-01; C09B057-00; C09B019-00;  
 C09B017-00; C09B011-04; C09B021-00

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and  
 Other Reprographic Processes)  
 Section cross-reference(s): 29, 35, 42

IT 191420-15-2P 191420-17-4P 191420-33-4P 191420-36-7P  
 191420-89-0P 191420-93-6P 191420-95-8P 191420-97-0P  
 191421-00-8P 191421-01-9P 191421-02-0P 191421-03-1P  
 191421-04-2P 191875-98-6P 191875-99-7P 191876-00-3P  
 191876-01-4P 191876-02-5P 191876-04-7P 191876-06-9P  
 191876-07-0P 191876-08-1P 191876-10-5P 191876-12-7P  
 191876-14-9P 191876-16-1P 191876-18-3P 191876-20-7P  
 191876-22-9P 191876-24-1P 191876-26-3P 191876-28-5P  
 191876-30-9P 191876-32-1P 191876-34-3P 191876-36-5P  
 191876-38-7P 191876-39-8P 191876-40-1P 191876-41-2P  
 191876-43-4P 191876-44-5P 191876-45-6P 191876-46-7P  
 191876-47-8P 191876-48-9P 191876-49-0P 191876-50-3P



191876-51-4P 191876-52-5P 191876-53-6P  
(preparation of borate photoinitiator from borane)

L12 ANSWER 23 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1997:270864 HCAPLUS

DOCUMENT NUMBER: 127:5118

TITLE: One-electron reductions of organodiborane(4)  
compounds: singly reduced anions and  
rearrangement reactions

AUTHOR(S): Grigsby, Warren J.; Power, Philip

CORPORATE SOURCE: Dep. Chem., Univ. California, Davis, CA,  
95616, USA

SOURCE: Chemistry--A European Journal (1997), 3(3),  
368-375

CODEN: CEUJED; ISSN: 0947-6539

PUBLISHER: VCH

DOCUMENT TYPE: Journal

LANGUAGE: English

AB One-electron redns. of the tetraaryldiborane(4) compound  
Mes<sub>2</sub>BBMes(Ph) (1) (Mes = 2,4,6-Me<sub>3</sub>C<sub>6</sub>H<sub>2</sub>) with KC<sub>8</sub> to afford the  
singly reduced radical anions [K(DME)<sub>3</sub>][Mes<sub>2</sub>BBMes(Ph)] (2) and  
[K([18]crown-6)(THF)<sub>2</sub>][Mes<sub>2</sub>BBMes(Ph)] (3) are described. Both 2  
and 3 were characterized by IR and EPR spectroscopy, and x-ray  
diffraction studies of 3 showed it to be a solvent-separated ion pair.  
Similarly, reduction of Mes(MeO)BB(OMe)Mes with lithium in di-Et ether  
under controlled conditions furnished the radical anion  
[Li(OEt)<sub>2</sub>][Mes(MeO)BB(OMe)Mes] (4), which has a contact-ion-pair  
structure in which lithium is solvated by oxygen atoms from ether  
mols. and methoxy groups. The x-ray crystallog. studies of (3)  
and (4) revealed shortened B-B bond lengths in both compds.,  
consistent with the presence of partial (bond order 0.5) B-B  $\pi$   
bonds. Interestingly, the B-B distances in the singly reduced  
species are very similar to those in the doubly reduced dianions  
[R<sub>2</sub>BBR<sub>2</sub>]<sup>2-</sup>, which have found  $\pi$ -bond orders of unity. The  
synthesis and characterization of 2,6-Mes<sub>2</sub>C<sub>6</sub>H<sub>3</sub>(MeO)BB(OMe)<sub>2</sub> (5)  
and 2,6-Mes<sub>2</sub>C<sub>6</sub>H<sub>3</sub>(MeO)BB(OMe)Mes (6) are also reported. Reduction of 6  
or 5 with lithium in di-Et ether solution did not lead to multiply  
bonded B-B species, but to the isolation of the rearranged  
products [(Et<sub>2</sub>O)Li][1-mesityl-5,7-dimethyl-9-hydro-10-  
{mesityl(methoxy)boryl}-10-boraphenanthrenyl] (7) and  
[(Et<sub>2</sub>O)<sub>2</sub>Li][1-mesityl-5,7-dimethyl-9-methoxy-9'-  
{methyl(methoxy)boryl}-9-borafluorenyl] (8), resp. Products 7 and  
8 are derived from the intramol. insertion of the boron center  
into C-H or C-C  $\sigma$  bonds. The crystal structure detns. of 5,  
7, and 8 are also described.

IT 189942-72-1P

(preparation and crystal structure of)

RN 189942-72-1 HCAPLUS

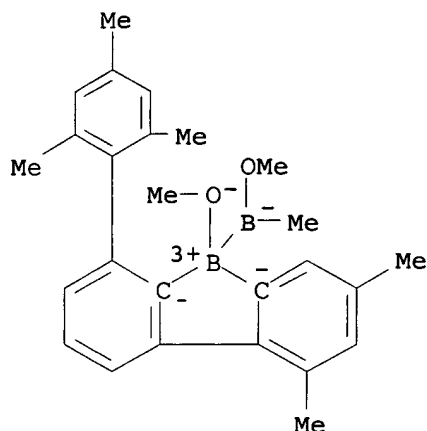
CN Lithium(1+), bis[1,1'-oxybis[ethane]]-, (T-4)-methoxy(methyl  
methylborinato- $\kappa$ B)(2'',4,4'',6,6''-pentamethyl[1,1':3',1''-  
terphenyl]-2,2'-diyl)borate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 189942-71-0

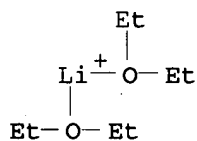
CMF C26 H31 B2 O2

CCI CCS



CM 2

CRN 78127-97-6  
 CMF C8 H20 Li O2  
 CCI CCS



CC 29-4 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 72, 75

IT 189942-70-9P 189942-72-1P 190087-99-1P

(preparation and crystal structure of)

REFERENCE COUNT: 41 THERE ARE 41 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE  
 IN THE RE FORMAT

L12 ANSWER 24 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1996:679757 HCAPLUS

DOCUMENT NUMBER: 125:336863

TITLE: Synthesis and characterization of novel B/C  
 materials prepared by 9-chloroborfluorene  
 precursor

AUTHOR(S): Hu, Raymond; Chung, T. C.

CORPORATE SOURCE: Dep. of Materials Science and Engineering,  
 Pennsylvania State Univ., University Park, PA,  
 16802, USA

SOURCE: Carbon (1996), 34(10), 1181-1190

CODEN: CRBNAH; ISSN: 0008-6223

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB This paper describes a novel boron-containing carbon (B/C) material  
 which contains up to 7 mol% of boron atoms substitutionally  
 incorporated in the graphite structure. The chemical involves the  
 use of 9-chloroborfluorene precursor and the thermo-

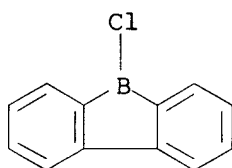
transformation reaction. 9-Chloroboratrafluorene was firstly oligomerized to mesophase boron-containing pitch (B-pitch) which is processable by solution and melt. The mesophase B-pitch was then pyrolyzed at various temps. ( $\leq 2300^\circ$ ) to produce B/C material with high yield (.apprx.80%). During pyrolysis, boron is not only substitutionally incorporated in the graphitic structure but also enhances the graphitization reaction. An unusually large crystallite size and small d-spacing between interlayers of the B/C product was observed by x-ray diffraction.

IT 13059-59-1

(precursor; synthesis and characterization of B-containing graphite materials prepared by thermal decomposition of 9-chloroboratrafluorene precursor)

RN 13059-59-1 HCAPLUS

CN 5H-Dibenzoborole, 5-chloro- (7CI, 8CI, 9CI) (CA INDEX NAME)



CC 57-8 (Ceramics)

Section cross-reference(s): 78

IT 13059-59-1

(precursor; synthesis and characterization of B-containing graphite materials prepared by thermal decomposition of 9-chloroboratrafluorene precursor)

L12 ANSWER 25 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1996:479406 HCAPLUS

DOCUMENT NUMBER: 125:221917

TITLE: Isolation and Reduction of Sterically Encumbered Arylboron Dihalides: Novel Boranediyl Insertion into C-C  $\sigma$ -Bonds

AUTHOR(S): Grigsby, Warren J.; Power, Philip P.

CORPORATE SOURCE: Department of Chemistry, University of California, Davis, CA, 95616, USA

SOURCE: Journal of the American Chemical Society (1996), 118(34), 7981-7988

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 125:221917

GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT  
\*

AB The synthesis and subsequent reduction of the arylboron dihalides 2,6-Mes<sub>2</sub>C<sub>6</sub>H<sub>3</sub>BX<sub>2</sub> (X = Cl (1); Br (2)) and 2,6-Trip<sub>2</sub>C<sub>6</sub>H<sub>3</sub>BBr<sub>2</sub> (3) (Mes = 2,4,6-Me<sub>3</sub>C<sub>6</sub>H<sub>2</sub>- and Trip = 2,4,6-i-Pr<sub>3</sub>C<sub>6</sub>H<sub>2</sub>-) are described. Treatment of 2 with Li metal in Et<sub>2</sub>O gave the novel Li

9-borafluorenyl compds. 4 (shown as I) and 5 (shown as II) in which the boranediyl intermediate has inserted into an o-Me-ring C-C  $\sigma$ -bond to form a borafluorenyl structure incorporating B in a delocalized five-membered ring. Boranediyl insertion into C-C  $\sigma$ -bonds, as distinct from boranediyl induced rearrangements involving C:C cleavage in delocalized aromatic substrates, is unknown. The main difference between the structures of these products is that 5 is dimerized as a consequence of the reduction in the number of solvating ethers. Reduction of 2 with KC8 gave the 9-borafluorenyl ate compds. 6 and 7 (shown as III; L = THF, C6H6). These products also result from C-C bond insertion by B as seen in 4 and 5. However, the delocalization is not observed owing to the addition of H (presumably from solvent) to the borons affording borate salts. Reduction of 3 with 3 equiv of KC8 furnishes the new diborate species 8 (shown as IV). This compound features as unique B-B bonded dianionic structure with a long (1.83(2) Å) B-B bond which arises from the association of two borate radical anion fragments that have a 9-borafluorenyl structure similar to those described above. 2-8 Were characterized by  $^1\text{H}$ ,  $^{13}\text{C}$ ,  $^7\text{Li}$ , and  $^{11}\text{B}$  NMR spectroscopy and by x-ray crystallog.

IT 180987-34-2P 180987-36-4P 180987-39-7P

181149-76-8P 181239-48-5P

(preparation and crystal structure of)

RN 180987-34-2 HCAPLUS

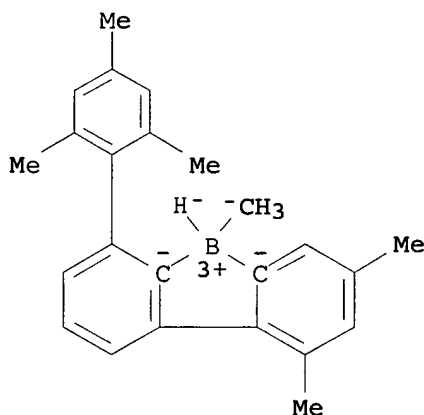
CN Potassium(1+), bis(tetrahydrofuran)-, (T-4)-hydromethyl[2'',4,4'',6,6''-pentamethyl[1,1':3',1''-terphenyl]-2,2'-diyl]borate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 180987-33-1

CMF C24 H26 B

CCI CCS

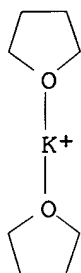


CM 2

CRN 73836-17-6

CMF C8 H16 K O2

CCI CCS



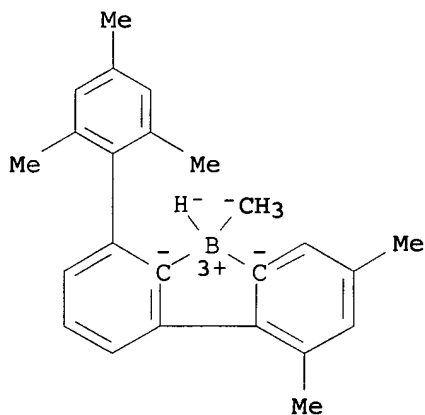
RN 180987-36-4 HCAPLUS  
 CN Borate(1-), hydromethyl[2'',4,4'',6,6''-pentamethyl[1,1':3',1''-terphenyl]-2,2'-diyl]-, (T-4)-, potassium, compd. with benzene (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 180987-35-3

CMF C24 H26 B . K

CCI CCS



● K<sup>+</sup>

CM 2

CRN 71-43-2

CMF C6 H6

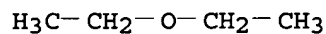


RN 180987-39-7 HCAPLUS

CN Potassium(1+), [1,1'-oxybis[ethane]]-, potassium dihydrobis[2'',4,4'',6,6''-pentakis(1-methylethyl)[1,1':3',1''-terphenyl]-2,2'-diyl]diborate(2-), compd. with 1,1'-oxybis[ethane] (2:2:2:3) (9CI) (CA INDEX NAME)

CM 1

CRN 60-29-7  
CMF C4 H10 O



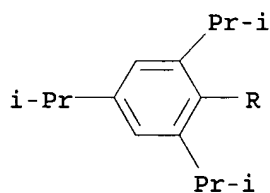
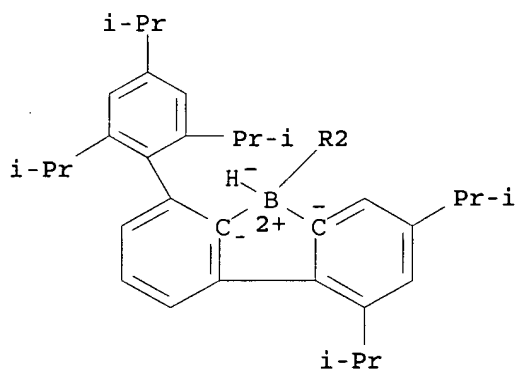
CM 2

CRN 180987-38-6  
CMF C66 H86 B2 . C4 H10 K O . K

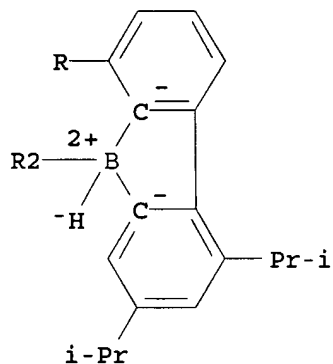
CM 3

CRN 180987-37-5  
CMF C66 H86 B2  
CCI CCS

PAGE 1-A



PAGE 2-A

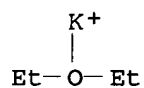


CM 4

CRN 120496-85-7

CMF C4 H10 K O

CCI CCS



RN 181149-76-8 HCAPLUS

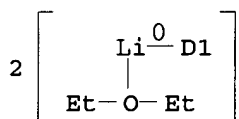
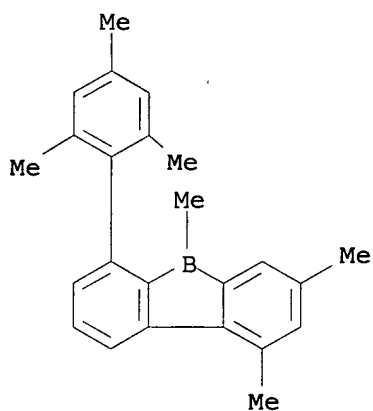
CN Lithium, [ $\mu$ -[dihydro-1,3,5-trimethyl-6-(2,4,6-trimethylphenyl)-5H-dibenzoborolyl]]bis[1,1'-oxybis[ethane]]di- (9CI) (CA INDEX NAME)

CM 1

CRN 181149-75-7

CMF C32 H43 B Li2 O2

CCI CCS, IDS

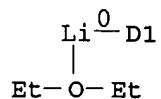
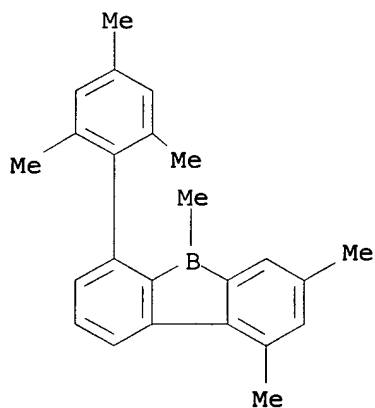


RN 181239-48-5 HCAPLUS  
 CN Lithium, [ $\mu$ -[dihydro-1,3,5-trimethyl-6-(2,4,6-trimethylphenyl)-5H-dibenzoborole-2-yl]] [1,1'-oxybis[ethane]]di- (9CI) (CA INDEX NAME)

CM 1

CRN 181239-47-4  
 CMF C28 H33 B Li2 O  
 CCI CCS, IDS

PAGE 1-A

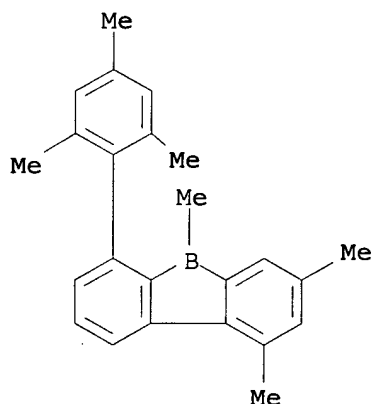




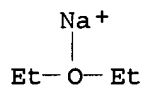
PAGE 2-A

D1-Li

IT 180987-41-1P  
 (preparation of)  
 RN 180987-41-1 HCAPLUS  
 CN Sodium(1+), [1,1'-oxybis[ethane]]-, salt with 1,3,5-trimethyl-6-(2,4,6-trimethylphenyl)-5H-dibenzoborole (1:1) (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 180987-40-0  
 CMF C24 H25 B  
 CCI RIS



CM 2  
 CRN 23016-30-0  
 CMF C4 H10 Na O  
 CCI CCS



CC 29-4 (Organometallic and Organometalloidal Compounds)  
 Section cross-reference(s): 75  
 IT 180987-34-2P 180987-36-4P 180987-39-7P  
 181149-76-8P 181239-48-5P  
 (preparation and crystal structure of)  
 IT 180987-41-1P  
 (preparation of)

L12 ANSWER 26 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1995:765704 HCAPLUS

USHA SHRESTHA EIC 1700 REM 4B28

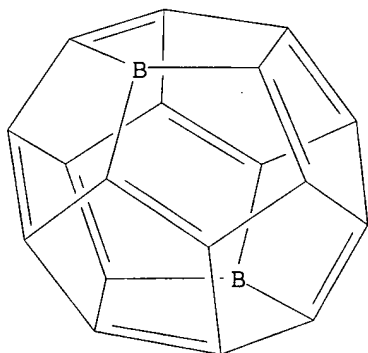
DOCUMENT NUMBER: 123:209188  
 TITLE: Closed-shell electronic requirements for small fullerene cage structures  
 AUTHOR(S): Fan, Man-Fai; Lin, Zhenyang; Yang, Shihe  
 CORPORATE SOURCE: Department of Chemistry, The Hong Kong University of Science and Technology, Clear Water Bay, Kowloon, Hong Kong  
 SOURCE: THEOCHEM (1995), 337(3), 231-40  
 CODEN: THEODJ; ISSN: 0166-1280  
 PUBLISHER: Elsevier  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB Hueckel model calcns. have been performed for small fullerene cages with 20-50 atoms. The closed-shell electronic structures for the small cages are emphasized. The relatively high stability of C<sub>24</sub>, C<sub>28</sub>, C<sub>32</sub>, C<sub>44</sub> and C<sub>50</sub> clusters observed in the early laser vaporization expts. is explained. These clusters have pseudo closed-shell or half-filled electronic structures with a relatively large HOMO-LUMO gap. Based on the Heuckel results, a large number of other possible stable clusters is proposed formed by adding hydrogens, replacing carbons with other atoms which have an appropriate number of valence electrons, or encapsulating metal atoms capable of donating a given number of valence electrons.

IT 55518-39-3, 1,20-Dibora[5]fullerene-C20-Ih  
 (closed-shell electronic requirements for stability of)

RN 55518-39-3 HCAPLUS

CN 1,20-Dibora[5]fullerene-C20-Ih (9CI) (CA INDEX NAME)

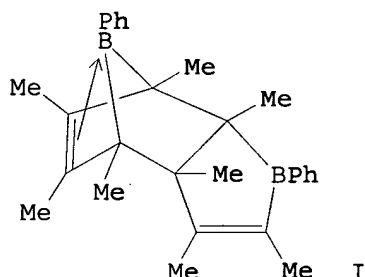


CC 65-3 (General Physical Chemistry)

IT 55518-39-3, 1,20-Dibora[5]fullerene-C20-Ih 104375-45-3,  
 [5]Fullerene-C20-Ih 115383-19-2, Fullerene C28 115383-20-5,  
 [5,6]Fullerene-C32-D3 115383-21-6, [5,6]Fullerene-C50-D5h(6)  
 135026-72-1, Fullerene C30 141175-42-0, [5,6]Fullerene-C44-Td  
 142870-58-4, Fullerene C24 142870-59-5, Fullerene C26  
 144161-03-5, Fullerene C36-D6h 145646-79-3, Fullerene C42-D3  
 146269-85-4, [5,6]Fullerene-C44-D3h 146269-86-5,  
 [5,6]Fullerene-C40-Td 146269-87-6, Fullerene C38-D3h  
 146401-64-1, [5,6]Fullerene-C38-C3v 153843-94-8,  
 [5,6]Fullerene-C34-C3v 153843-95-9, [5,6]Fullerene-C46-C3  
 153843-96-0, [5,6]Fullerene-C48-D3 155475-37-9,  
 [5,6]Fullerene-C40-C3v 156799-47-2, Fullerene-C40 168026-90-2  
 (closed-shell electronic requirements for stability of)

L12 ANSWER 27 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1994:270663 HCAPLUS  
 DOCUMENT NUMBER: 120:270663  
 TITLE: Metallacycle Transfer from Zirconium to Main Group Elements: A Versatile Synthesis of Heterocycles  
 AUTHOR(S): Fagan, Paul J.; Nugent, William A.; Calabrese, Joseph C.  
 CORPORATE SOURCE: Central Research and Development Department, DuPont Company, Wilmington, DE, 19880-0328, USA  
 SOURCE: Journal of the American Chemical Society (1994), 116(5), 1880-9  
 CODEN: JACSAT; ISSN: 0002-7863  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 120:270663  
 GI



AB The reaction of zirconium metallacycles is used to produce a variety of main group heterocycles including borole Diels-Alder dimers, galloles, indacyclopentadienes, siloles, germales, stannoles, phospholes, arsoles, stiboles, bismoles, thiophenes, selenophenes, dihydrothiophenes, dihydroselenophenes, tetrahydrothiophenes, tetrahydroselenophenes, stannacyclopentanes, phospholenes, and isothiazoles. An x-ray crystallog. study of the borole Diels-Alder dimer of 1-phenyl-2,3,4,5-tetramethylborole (I) is discussed and compared with the structure of 7-norbornenyl carbenium ions. The scope and potential for this metallacycle transfer reaction are delineated.

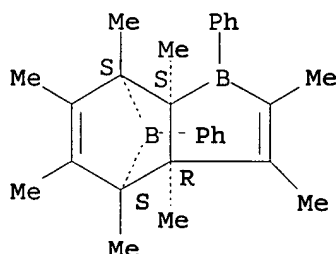
IT 113668-53-4P

(preparation and crystal and mol. structure of)

RN 113668-53-4 HCAPLUS

CN 4,7-Borylene-1H-1-benzoborole, 3a,4,7,7a-tetrahydro-  
 2,3,3a,4,5,6,7,7a-octamethyl-1,8-diphenyl-, (3aR,4S,7S,7aS)-rel-  
 (9CI) (CA INDEX NAME)

Relative stereochemistry.



CC 29-10 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 75

IT 113668-53-4P

(preparation and crystal and mol. structure of)

L12 ANSWER 28 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1994:270495 HCAPLUS

DOCUMENT NUMBER: 120:270495

TITLE: Rearrangements of organometallic compounds.

26. Bora-aromatic systems. 15. Skeletal rearrangements of arylborane complexes mediated by redox reactions: thermal and photochemical oxidation by metal ions

AUTHOR(S): Eisch, John J.; Shah, Jamshed H.; Boleslawski, Marek P.

CORPORATE SOURCE: Department of Chemistry, The State University of New York at Binghamton, Binghamton, NY, 13902-6000, USA

SOURCE: Journal of Organometallic Chemistry (1994), 464(1), 11-21

CODEN: JORCAI; ISSN: 0022-328X

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 120:270495

AB A variety of metal salts are reduced by thermal and photochem. interaction with tetraarylborate salts and with neutral alkyl- and aryl-borane complexes. In the cases of Cu<sup>2+</sup>, Cu<sup>+</sup>, Ni<sup>2+</sup>, Co<sup>2+</sup>, Pd<sup>2+</sup>, Pt<sup>2+</sup>, Ag<sup>+</sup>, Zn<sup>2+</sup>, Hg<sup>2+</sup>, Sn<sup>2+</sup>, Pb<sup>2+</sup> and Rh<sup>3+</sup> salts, such photochem. redns. with NaBPh<sub>4</sub> led to the deposition of the free metal, while a number of binary mixts. of metal salts led to the codeposition of both metals, sometimes as true alloys, under such photoreductions. The arylborate reductants underwent oxidative coupling of the aryl groups to form biaryls in a strictly intra-ionic (for BAr<sub>4</sub><sup>-</sup>) or intramol. (Ar<sub>3</sub>B) manner, resp. Individual studies of the photochem. of the tetraarylborate anion itself, of cuprous tetraphenylborate and of the triphenylborane-pyridine complex adduced evidence for a gamut of reactive intermediates capable of serving as the photoreductant for metal ions, such as triarylborane radical anions, diarylborate(I) anions or arylborenes, 7-borabicycloheptadiene anions or neutral complexes and finally arylborohydride anions or arylboron hydrides. The role of these intermediates both in the photoinduced skeletal rearrangements of arylboranes and in the concomitant reduction of metal ions is discussed in critical detail.

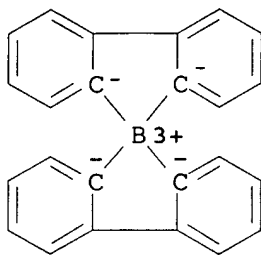
IT 54873-17-5P

(preparation and aryl coupling reaction of, with cupric bromide)

RN 54873-17-5 HCAPLUS

CN Borate(1-), bis([1,1'-biphenyl]-2,2'-diyl)-, sodium, (T-4)- (9CI)

(CA INDEX NAME)

● Na<sup>+</sup>

CC 29-4 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 78

IT 54873-17-5P

(preparation and aryl coupling reaction of, with cupric bromide)

L12 ANSWER 29 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1993:408897 HCAPLUS

DOCUMENT NUMBER: 119:8897

TITLE: Syntheses, structures, and spectroscopic studies of several new classes of compounds having boron-arsenic bonds

AUTHOR(S): Petrie, Mark A.; Olmstead, Marilyn M.; Hope, H.; Bartlett, Ruth A.; Power, Philip P.

CORPORATE SOURCE: Dep. Chem., Univ. California, Davis, CA, 95616, USA

SOURCE: Journal of the American Chemical Society (1993), 115(8), 3221-6

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 119:8897

AB Several new arsinoboranes, wherein boron and arsenic are three coordinate, have been prepared and characterized. They are analogous to B-N and B-P species in which p-p  $\pi$ -bonding, although inherently strong, is difficult to achieve because of the larger inversion barrier at arsenic. Nonetheless, very electropos. or bulky substituents at arsenic reduce this barrier sufficiently to observe substantial B-As  $\pi$ -interactions. The compound studied include [PhB(Cl)As(CMe<sub>3</sub>)<sub>2</sub>]<sub>2</sub> (1), PhB{As(CMe<sub>3</sub>)<sub>2</sub>]<sub>2</sub> (2), Cp\*B(Cl)As(CMe<sub>3</sub>)<sub>2</sub> (3), (C<sub>2</sub>O<sub>2</sub>H<sub>3</sub>O)BAs(CMe<sub>3</sub>)<sub>2</sub> (4), Mes<sub>2</sub>BAsPhLi(THF)<sub>3</sub> (5), [Mes<sub>2</sub>BAsPh][Li(TMEDA)<sub>2</sub>] (6), and Mes<sub>2</sub>BAs(Ph)SiMe<sub>3</sub> (7) (Cp\* = pentamethylcyclopentadienyl, TMEDA = N,N'-tetramethylenediamine, Mes = 2,4,6-Me<sub>3</sub>C<sub>6</sub>H<sub>2</sub>). The species 5 and 6 have been reported in a preliminary note. All compds. were characterized by X-ray crystallog. and <sup>1</sup>H NMR and <sup>11</sup>B NMR spectroscopy. In addition, 5 and 7 were characterized by variable-temperature <sup>1</sup>H NMR studies.

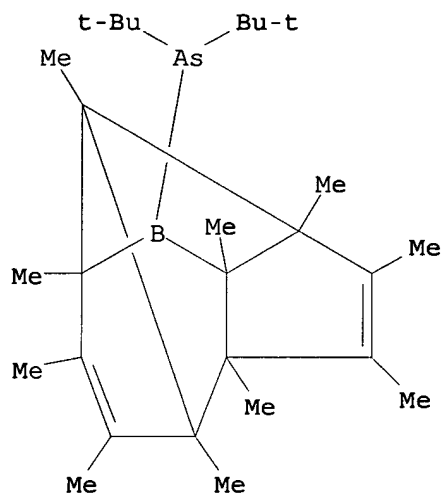
IT 147766-65-2P

(preparation and crystal and mol. structure of)

RN 147766-65-2 HCAPLUS

CN Arsine, bis(1,1-dimethylethyl) (5,5a,8,8a-tetrahydro-

2,3,4,5,5a,6,7,8,8a,9-decamethyl-2,5,8-methenocyclopenta[b]borepin-1(2H)-yl) - (9CI) (CA INDEX NAME)



CC 29-8 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 75

IT 147744-85-2P 147744-86-3P 147744-87-4P 147766-65-2P  
(preparation and crystal and mol. structure of)

L12 ANSWER 30 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1993:7011 HCAPLUS

DOCUMENT NUMBER: 118:7011

TITLE: Diallenylboranes as starting molecules for boron heterocycles

AUTHOR(S): Enders, Markus; Pritzkow, Hans; Siebert, Walter

CORPORATE SOURCE: Anorg.-Chem. Inst., Univ. Heidelberg, Heidelberg, W-6900, Germany

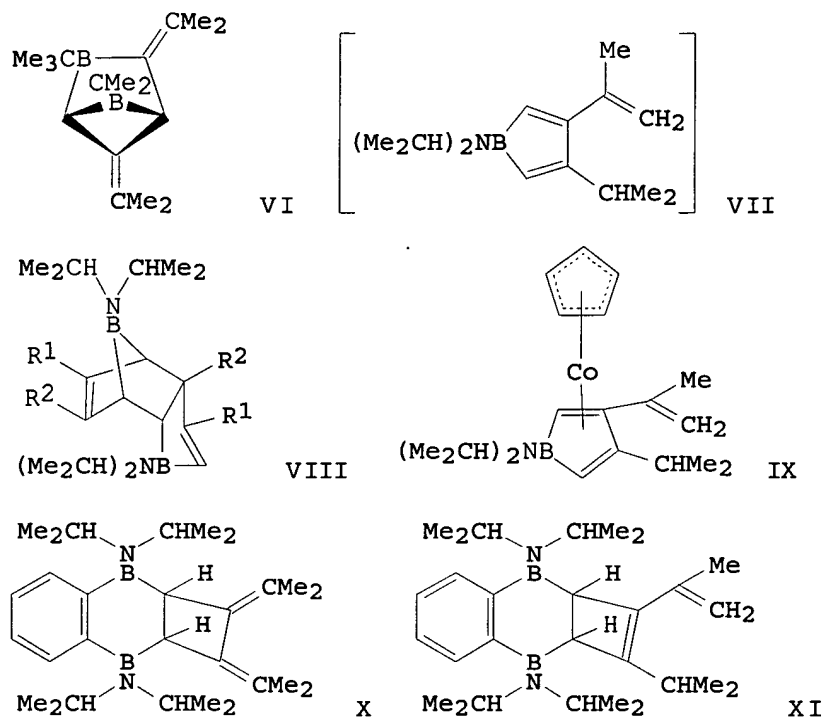
SOURCE: Chemische Berichte (1992), 125(9), 1981-5  
CODEN: CHBEAM; ISSN: 0009-2940

DOCUMENT TYPE: Journal

LANGUAGE: German

OTHER SOURCE(S): CASREACT 118:7011

GI



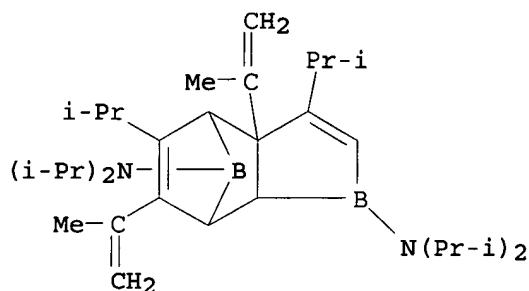
AB The reaction of allenyllithium with chloro(dialkylamino)boranes leads to the diallenylboranes  $(\text{Me}_2\text{CH})_2\text{NB}(\text{CH}:\text{C}:\text{CMe}_2)_2$  (I),  $\text{Me}_2\text{C}:\text{C}:\text{CHBRBRCH}:\text{C}:\text{CMe}_2$  [ $\text{R} = \text{NMe}_2$  (II),  $\text{CMe}_3$  (III)], and  $\text{X}[\text{B}(\text{R})\text{CH}:\text{C}:\text{CMe}_2]_2$  [ $\text{X} = \text{CH}_2$  (IV),  $\text{R} = \text{NMe}_2$ ,  $\text{N}(\text{CHMe}_2)_2$ ;  $\text{X} = \text{o-C}_6\text{H}_4$ ,  $\text{R} = \text{N}(\text{CHMe}_2)_2$  (V)] in 58-80% yields. Attempts to obtain III resulted in the formation of the unusual bicyclo compound VI. Heating I in toluene gives the intermediate borole derivative VII, which dimerizes to the Diels-Alder product VIII. Reaction of I with  $(\text{C}_5\text{H}_5)\text{Co}(\text{C}_2\text{H}_4)_2$  leads to the cobalt-borole complex IX. No 1,5-H shift occurs on heating II and IV, resp. Heating V in mesitylene yields the diboratricyclic X, which undergoes a photochem. 1,5-H shift to XI. Single crystal x-ray structure detns. of X, XI, and the complex IX confirm their constitutions.

IT 142363-08-4P

(preparation and spectra of)

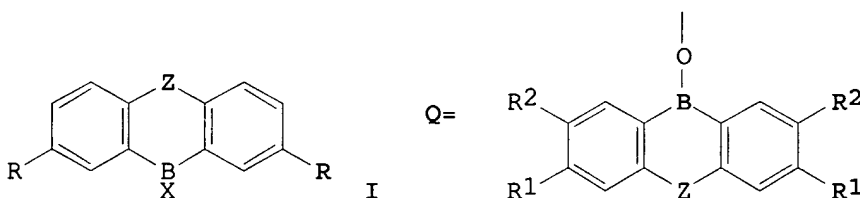
RN 142363-08-4 HCAPLUS

CN 4,7-Borylene-1H-1-benzoborole-1,8-diamine, 3a,4,7,7a-tetrahydro-3a,6-bis(1-methylethenyl)-N,N,N',N',3,5-hexakis(1-methylethyl)-, (3a $\alpha$ ,4 $\alpha$ ,7 $\alpha$ ,7a $\alpha$ ) - (9CI) (CA INDEX NAME)



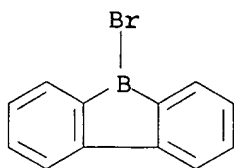
CC 29-4 (Organometallic and Organometalloidal Compounds)  
 Section cross-reference(s): 75  
 IT 142363-05-1P 142363-06-2P 142363-08-4P 142363-11-9P  
 (preparation and spectra of)

L12 ANSWER 31 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1991:408860 HCAPLUS  
 DOCUMENT NUMBER: 115:8860  
 TITLE: Electronic spectral study of conjugation in  
 phenheteraborins  
 AUTHOR(S): Kuznetsov, V. A.; Gamzatov, A. Z.; Barabonin,  
 S. Yu.; Reikhsfel'd, V. O.; Nesterova, S. V.  
 CORPORATE SOURCE: Astrakhan. Tekh. Inst. Rybn. Prom. Khoz.,  
 Astrakhan, USSR  
 SOURCE: Zhurnal Obshchei Khimii (1990), 60(11),  
 2505-11  
 CODEN: ZOKHA4; ISSN: 0044-460X  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 GI



AB UV spectra of phenheteraborins (I; R = H, Me, Br; Z = O, NMe, Si,  
 null; X = Ph, OCH2CH2NH2, OH, Br, 2Ph, Q; R1 = H, Me, Br; R2 = H,  
 Br) were examined. A linear correlation exists between the  
 frequencies of long-wave maximum in electron-transfer bands from HOMO  
 to LUMO ( $\nu_0$ ) and frequencies of charge transfer ( $\nu_{CT}$ ). An  
 aromatic  $\pi$ -electron system is confirmed, with  $n$ - $\pi$ -p-conjugation  
 in the heterocycle. The degree of aromaticity in I is similar to  
 that in naphthalene and more condensed systems.  
 IT 97322-60-6  
 (UV spectrum of, aromaticity and conjugation in relation to)  
 RN 97322-60-6 HCAPLUS  
 CN 5H-Dibenzoborole, 5-bromo- (9CI) (CA INDEX NAME)





CC 29-4 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 22

IT 18870-55-8 19014-28-9 95072-98-3 95925-64-7 95926-22-0  
 97322-60-6 110156-13-3 112261-35-5 118450-94-5  
 118450-96-7 134245-09-3 134266-42-5

(UV spectrum of, aromaticity and conjugation in relation to)

L12 ANSWER 32 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1991:122465 HCAPLUS

DOCUMENT NUMBER: 114:122465

TITLE: Derivatives of borole. XVII.  
 [ $\eta^5$ -[1-(Diisopropylamino)borole]]metal  
 complexes: syntheses, protonation, internal  
 rotation

AUTHOR(S): Herberich, Gerhard E.; Negele, Michael; Ohst,  
 Holger

CORPORATE SOURCE: Inst. Anorg. Chem., Tech. Hochsch. Aachen,  
 Aachen, D-5100, Germany

SOURCE: Chemische Berichte (1991), 124(1), 25-9  
 CODEN: CHBEAM; ISSN: 0009-2940

DOCUMENT TYPE: Journal

LANGUAGE: German

OTHER SOURCE(S): CASREACT 114:122465

GI For diagram(s), see printed CA Issue.

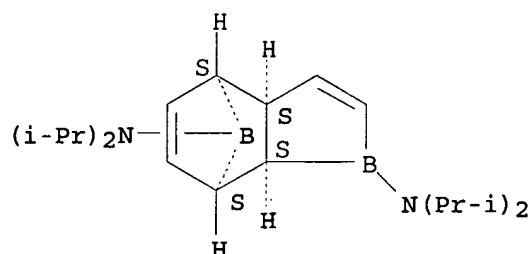
AB New complexes  $M(CO)_4L$  ( $M = Cr, W$  and  $cis-M(CO)_2L_2$  [ $M = Mo, W$  (not isolated)], and  $(COD)NiL$  ( $COD = 1,5$ -cyclooctadiene) were prepared from the Diels-Alder dimer  $L_2$  (I), where  $L$  is 1-(diisopropylamino)borole,  $C_4H_4BN(CHMe_2)_2$ . Complexes of  $L$  can be protonated at the nitrogen atom to give stable salts such as  $[Cr(CO)_4(LH)]BF_4$ ,  $[Fe(CO)_3(LH)]BF_4$ ,  $[(C_6Me_6)Ru(LH)]BF_4$ , and  $[CpCo(LH)]BF_4$  ( $Cp = \eta^5$ -cyclopentadienyl); B-N dissociation is not observed. Barriers to internal rotation were determined by variable temperature NMR spectroscopy for  $Cr(CO)_4L$ ,  $(COD)NiL$ , and  $NiL_2$ . Three processes were identified: rotation of the  $N(CHMe_2)_2$  group around the B-N bond, gear-mesh rotation of the iso-Pr groups around the C-N bonds, and rotation of  $L$  with respect to the counter ligands.

IT 99610-64-7  
 (reaction of, with metal carbonyl complexes)

RN 99610-64-7 HCAPLUS

CN 4,7-Borylene-1H-1-benzoborole-1,8-diamine, 3a,4,7,7a-tetrahydro-  
 N,N,N',N'-tetrakis(1-methylethyl)-, (3a $\alpha$ ,4 $\alpha$ ,7 $\alpha$ ,7  
 $\alpha\alpha$ )-(9CI) (CA INDEX NAME)

Relative stereochemistry.



CC 29-4 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 22

IT 99610-64-7

(reaction of, with metal carbonyl complexes)

L12 ANSWER 33 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1991:53201 HCAPLUS

DOCUMENT NUMBER: 114:53201

TITLE: Structure of 2,10-bis(diisopropylamino)-1,5-dihydro-1,5-epiborano-2H-benzo[c]borepine

AUTHOR(S): Noltemeyer, Mathias; Pauer, Frank; Bromm, Dietmar; Meller, Anton

CORPORATE SOURCE: Inst. Anorg. Chem., Univ. Goettingen, Goettingen, D-3400, Germany

SOURCE: Acta Crystallographica, Section C: Crystal Structure Communications (1990), C46(10), 1981-2

CODEN: ACSCEE; ISSN: 0108-2701

DOCUMENT TYPE: Journal

LANGUAGE: English

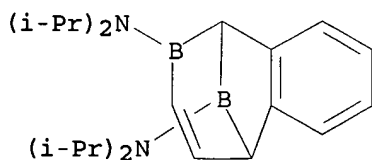
AB The title compound is monoclinic, space group C2/c, with a 10.701(9), b 17.789(9), c 24.143(12) Å, and  $\beta = 90.84(3)^\circ$ ; d. (calculated) = 1.01 for Z = 8. Final R = 0.078 for 1450 reflections. Atomic coordinates are given. The compound was obtd. by borylation of naphthalene in such a way that one Bn[CH(CH<sub>3</sub>)<sub>2</sub>]<sub>2</sub> unit has been added across one of the benzo rings, while the other has been inserted into the ring skeleton.

IT 131426-73-8

(crystal structure of)

RN 131426-73-8 HCAPLUS

CN 1,5-Borylene-2H-2-benzoborepin-2,10-diamine, 1,5-dihydro-N,N,N',N'-tetrakis(1-methylethyl)- (9CI) (CA INDEX NAME)



CC 75-8 (Crystallography and Liquid Crystals)

Section cross-reference(s): 29

IT 131426-73-8

(crystal structure of)

L12 ANSWER 34 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1990:552525 HCAPLUS  
 DOCUMENT NUMBER: 113:152525  
 TITLE: Boron-nitrogen compounds. 125. Pyrazole  
 complexes of three-coordinated boranes  
 AUTHOR(S): Komorowski, L.; Maringgele, W.; Meller, A.;  
 Niedenzu, Kurt; Serwatowski, J.  
 CORPORATE SOURCE: Dep. Chem., Univ. Kentucky, Lexington, KY,  
 40506, USA  
 SOURCE: Inorganic Chemistry (1990), 29(19), 3845-9  
 CODEN: INOCAJ; ISSN: 0020-1669  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 113:152525

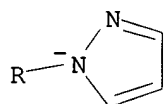
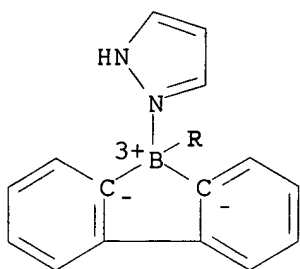
AB Both BF<sub>3</sub> and BEt<sub>3</sub> form 1:1 M complexes with pyrazole (Hpz) and C-substituted derivs. thereof. Provided the pyrazole is a relatively strong base, the BF<sub>3</sub> complexes slowly decompose on prolonged standing at room temperature with the elimination of HF to form the corresponding dimeric 1-pyrazolylboranes = pyrazaboles, e.g., F<sub>2</sub>B(μ-pz)<sub>2</sub>BF<sub>2</sub>. Deprotonation of Hpz·BEt<sub>3</sub> with NaH yields the ion [Et<sub>3</sub>B(pz)]<sup>-</sup> and the salt K[Et<sub>2</sub>B(pz)<sub>2</sub>] is obtained on heating of an equimolar mixture of Hpz·BEt<sub>3</sub> and Kpz in Hpz. K[R<sub>2</sub>B(pz)<sub>2</sub>] are also obtained by the reaction of Me<sub>2</sub>NBR<sub>2</sub>, with Kpz and Hpz; they were converted to the representative Pd complexes Pd[(μ-pz)<sub>2</sub>BEt<sub>2</sub>]<sub>2</sub> and R<sub>2</sub>B(μ-pz)<sub>2</sub>Pd(π-CH<sub>2</sub>CHCH<sub>2</sub>) (R = Et, Pr, Ph), resp. Interaction of Me<sub>2</sub>NBR<sub>2</sub> with 1 molar equivalent of Hpz gives 1:1 complexes Me<sub>2</sub>HN·BR<sub>2</sub>(pz), which can react with an addnl. molar equivalent of Hpz at elevated temps. to form Hpz·BR<sub>2</sub>(pz), or form mixts. of the desired compound with the pyrazabole relative R<sub>2</sub>B(μ-pz)[μ-NMe<sub>2</sub>]BR<sub>2</sub>. Steric factors may prevent the intermediate formation of the 1:1 complexes to lead directly to Hpz·BR<sub>2</sub>(pz). The complexes Hpz·BR<sub>2</sub>(pz) can be thermolyzed to yield the pyrazaboles R<sub>2</sub>B(μ-pz)<sub>2</sub>BR<sub>2</sub>. However, whereas the reaction of [Me<sub>2</sub>NBF<sub>2</sub>]<sub>2</sub> with Hpz ultimately yields the pyrazabole F<sub>2</sub>B(μ-pz)<sub>2</sub>BF<sub>2</sub>, the reaction of the cited aminoborane with Hpz and Kpz causes redistribution of fluorine and K[F<sub>3</sub>B(pz)] is obtained as the only product containing B-F bonds. The complex (pz)<sub>2</sub>BEt(H<sub>2</sub>NMe) is formed on reaction of the borazine (EtBNMe<sub>2</sub>)<sub>3</sub> with a large excess of Hpz, and H(pz)<sub>3</sub>B(NHMe) is obtained in analogous fashion originating from the borazine Me<sub>2</sub>NBNMe<sub>3</sub>. The reaction of Me<sub>2</sub>NNH<sub>2</sub>B with excess Hpz yields the complex Me<sub>2</sub>NNH<sub>2</sub>·B(pz)<sub>3</sub>.

IT 129391-30-6P

(preparation and thermolysis of)

RN 129391-30-6 HCAPLUS

CN Boron, [1,1'-biphenyl]-2,2'-diyl(1H-pyrazolato-N1)(1H-pyrazole-N2)-  
 , (T-4)- (9CI) (CA INDEX NAME)

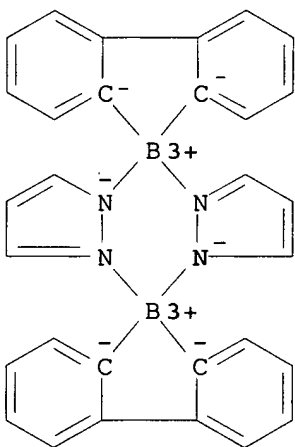


IT 129391-31-7P

(preparation of)

RN 129391-31-7 HCAPLUS

CN Boron, bis([1,1'-biphenyl]-2,2'-diyl)bis[μ-(1H-pyrazolato-N1:N2)]di- (9CI) (CA INDEX NAME)

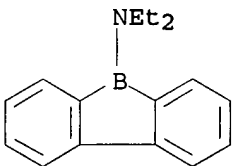


IT 97322-63-9

(reaction of, with pyrazole)

RN 97322-63-9 HCAPLUS

CN 5H-Dibenzoborol-5-amine, N,N-diethyl- (9CI) (CA INDEX NAME)



CC 29-4 (Organometallic and Organometalloidal Compounds)

IT 129391-30-6P

(preparation and thermolysis of)

IT 23218-84-0P 105336-02-5P 109744-75-4P 129391-16-8P  
 129391-17-9P 129391-18-0P 129391-19-1P 129391-21-5P  
 129391-22-6P 129391-23-7P 129391-24-8P 129391-26-0P  
 129391-27-1P 129391-28-2P 129391-29-3P 129391-31-7P  
 129391-32-8P 129391-33-9P 129391-34-0P 129391-35-1P  
 129391-36-2P 129421-13-2P 129421-14-3P

(preparation of)

IT 715-62-8 6982-55-4 7397-47-9 16912-59-7 97322-63-9  
 124927-05-5

(reaction of, with pyrazole)

L12 ANSWER 35 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1990:542214 HCAPLUS

DOCUMENT NUMBER: 113:142214

TITLE: Negatively charged electrophotographic toner

INVENTOR(S): Hsieh, Bing R.; Gruber, Robert J.; Haack, John L.

PATENT ASSIGNEE(S): Xerox Corp., USA

SOURCE: U.S., 10 pp.  
 CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4898802	A	19900206	US 1989-354181	1989 0522
PRIORITY APPLN. INFO.:				1989 0522

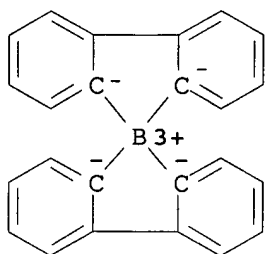
OTHER SOURCE(S): MARPAT 113:142214

AB A neg. charged electrophotog. toner comprises a resin, a pigment, and a charge-enhancing agent selected from the salts of 5,5'-spirobis(5H-dibenzoborole), 2,2',8,8'-tetramethoxy-5,5'-spirobi(5H-dibenzoborole), 3,3',7,7'-tetra-tert-butyl-5,5'-spirobi(5H-dibenzoborole), 2,2',8,8'-tetrafluoro-5,5'-spirobi(5H-dibenzoborole), and 2,2',3,3',7,7',8,8'-octamethoxy-5,5'-spirobi(5H-dibenzoborole). The electrophotog. toner containing the charge-enhancing agent shows triboelec. charging characteristics which are insensitive to humidity and is suited for a variety of electrophotog. imaging and printing processes including color xerog.

IT 108479-75-0 129433-65-4  
 (charge-enhancing agent, for electrophotog. toners)

RN 108479-75-0 HCAPLUS

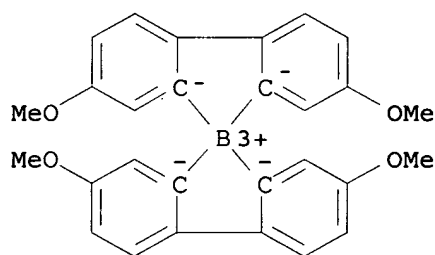
CN Borate(1-), bis([1,1'-biphenyl]-2,2'-diyl)-, lithium, (T-4)- (9CI)  
 (CA INDEX NAME)



● Li<sup>+</sup>

RN 129433-65-4 HCAPLUS

CN Borate(1-), bis(4,4'-dimethoxy[1,1'-biphenyl]-2,2'-diyl)-, lithium, (T-4)- (9CI) (CA INDEX NAME)



● Li<sup>+</sup>

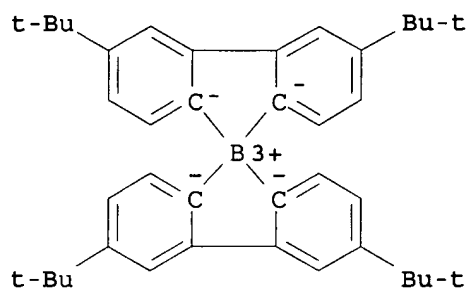
IT 128239-41-8D, salts 128239-42-9D, salts

128239-43-0D, salts

(charge-enhancing agents, for electrophotog. toners)

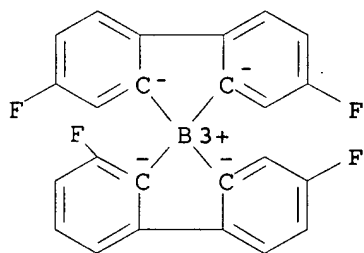
RN 128239-41-8 HCAPLUS

CN Borate(1-), bis[5,5'-bis(1,1-dimethylethyl)[1,1'-biphenyl]-2,2'-diyl]-, lithium, (T-4)- (9CI) (CA INDEX NAME)



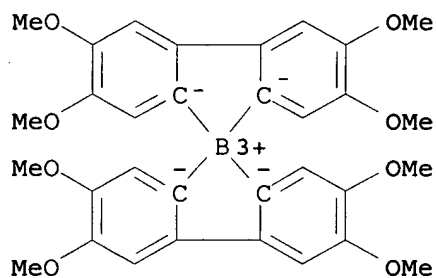
RN 128239-42-9 HCAPLUS

CN Borate(1-), bis(4,4'-difluoro[1,1'-biphenyl]-2,2'-diyl)-, (T-4)-  
(9CI) (CA INDEX NAME)



RN 128239-43-0 HCAPLUS

CN Borate(1-), bis(4,4',5,5'-tetramethoxy[1,1'-biphenyl]-2,2'-diyl)-,  
(T-4)- (9CI) (CA INDEX NAME)



IC ICM G03G009-08

INCL 430110000

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)

IT 108479-75-0 129433-65-4

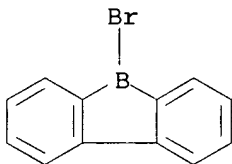
(charge-enhancing agent, for electrophotog. toners)

IT 128239-41-8D, salts 128239-42-9D, salts

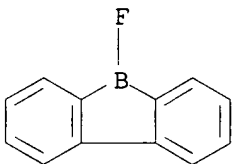
128239-43-0D, salts

(charge-enhancing agents, for electrophotog. toners)

L12 ANSWER 36 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1989:135284 HCAPLUS  
 DOCUMENT NUMBER: 110:135284  
 TITLE: A general, simple, and efficient synthesis of fluoroorganoboranes  
 AUTHOR(S): Bir, Gerd; Schacht, Wolfgang; Kaufmann, Dieter  
 CORPORATE SOURCE: Inst. Org. Chem., Univ. Hamburg, Hamburg, D-2000/13, Fed. Rep. Ger.  
 SOURCE: Journal of Organometallic Chemistry (1988), 340(3), 267-71  
 CODEN: JORCAI; ISSN: 0022-328X  
 DOCUMENT TYPE: Journal  
 LANGUAGE: German  
 OTHER SOURCE(S): CASREACT 110:135284  
 AB The fluorination of a number of alkyl- and arylchloro- and bromoboranes succeeds upon transhalogenation with lithium or potassium fluoride under mild reaction conditions in good yields. Thus, fluorination of 2-methylphenylboron dichloride with LiF in Et<sub>2</sub>O gave 67% 2-MeC<sub>6</sub>H<sub>4</sub>BF<sub>2</sub>, whereas fluorination of 5-bromo-5H-dibenzoborole with KF in MeCN gave 73% 5-fluoro-5H-dibenzoborate.  
 IT 97322-60-6  
 (halogen exchange reaction of, with potassium fluoride)  
 RN 97322-60-6 HCAPLUS  
 CN 5H-Dibenzoborole, 5-bromo- (9CI) (CA INDEX NAME)



IT 119615-28-0P  
 (preparation of)  
 RN 119615-28-0 HCAPLUS  
 CN 5H-Dibenzoborole, 5-fluoro- (9CI) (CA INDEX NAME)



CC 29-4 (Organometallic and Organometalloidal Compounds)  
 IT 97322-60-6 112150-12-6 112160-25-5  
 (halogen exchange reaction of, with potassium fluoride)  
 IT 86880-77-5P 112150-02-4P 119615-25-7P 119615-26-8P  
 119615-27-9P 119615-28-0P 119662-07-6P  
 (preparation of)

L12 ANSWER 37 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1988:186801 HCAPLUS  
 DOCUMENT NUMBER: 108:186801



TITLE: Synthesis of boroles and their use in low-temperature Diels-Alder reactions with unactivated alkenes

AUTHOR(S): Fagan, Paul J.; Burns, Elizabeth G.; Calabrese, Joseph C.

CORPORATE SOURCE: Cent. Res. Dev. Dep., E. I. du Pont de Nemours and Co., Wilmington, DE, 19898, USA

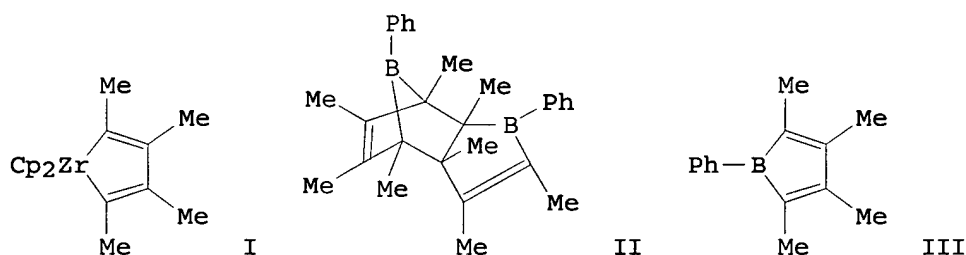
SOURCE: Journal of the American Chemical Society (1988), 110(9), 2979-81  
CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 108:186801

GI



AB Reaction of Zr metallacycle I with 1 equiv  $\text{PhBCl}_2$  gave  $\text{Cp}_2\text{ZrCl}_2$  ( $\text{Cp} = \eta^5\text{-C}_5\text{H}_5$ ) and borole dimer II via the Diels-Alder dimerization of the intermediate 1-phenyl-2,3,4,5-tetramethylborole III. X-ray crystallog. shows that II has stereochem. resulting from endo addition of one borole ring upon the double bond of another, and that there is a non-classical interaction of the electron deficient bridgehead phenylboron group with the adjacent double bond indicative of sym. two electron-three center bonding. By a retro Diels-Alder reaction upon mild heating, II regenerates III in situ, which reacts with unactivated alkyne and alkenes, e.g., 2-butyne, ethylene, styrene, allyl chloride, cyclohexene, methylenecyclohexane, allene, 1,3-butadiene, and 1,3-cyclohexadiene, to give the corresponding Diels-Alder adducts in 63-94% yields.

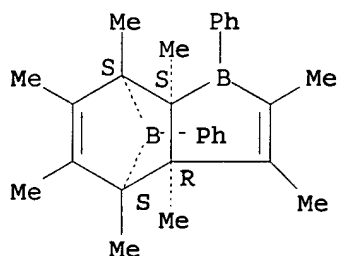
IT 113668-53-4P

(preparation and retro Diels-Alder reaction of, in presence of alkenes and alkynes)

RN 113668-53-4 HCAPLUS

CN 4,7-Borylene-1H-1-benzoborole, 3a,4,7,7a-tetrahydro-2,3,3a,4,5,6,7,7a-octamethyl-1,8-diphenyl-, (3aR,4S,7S,7aS)-rel-(9CI) (CA INDEX NAME)

Relative stereochemistry.



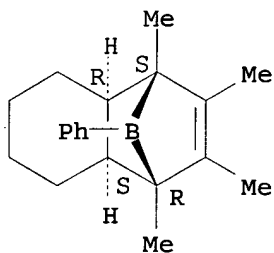
IT 113668-58-9P 113668-62-5P

(preparation of)

RN 113668-58-9 HCAPLUS

CN 1,4-Borylenenaphthalene, 1,4,4a,5,6,7,8,8a-octahydro-1,2,3,4-tetramethyl-9-phenyl-, (1 $\alpha$ ,4 $\alpha$ ,4 $\alpha$ ,8 $\alpha$ )- (9CI) (CA INDEX NAME)

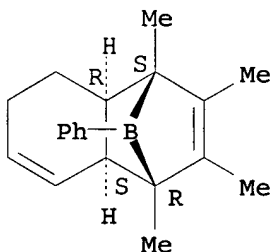
Relative stereochemistry.



RN 113668-62-5 HCAPLUS

CN 1,4-Borylenenaphthalene, 1,4,4a,5,6,8a-hexahydro-1,2,3,4-tetramethyl-9-phenyl-, (1 $\alpha$ ,4 $\alpha$ ,4 $\alpha$ ,8 $\alpha$ )- (9CI) (CA INDEX NAME)

Relative stereochemistry.



CC 29-4 (Organometallic and Organometalloidal Compounds)

IT 113668-53-4P

(preparation and retro Diels-Alder reaction of, in presence of alkenes and alkynes)

IT 113668-55-6P 113668-56-7P 113668-57-8P 113668-58-9P

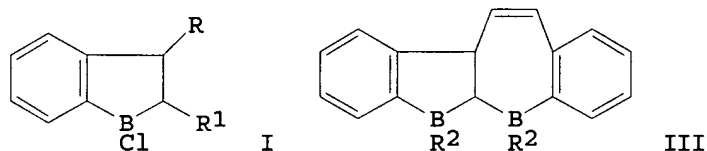
113668-59-0P 113668-60-3P 113668-61-4P 113668-62-5P

113668-63-6P

(preparation of)

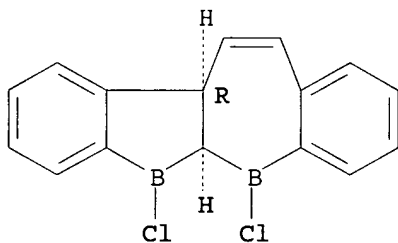
L12 ANSWER 38 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1987:477869 HCAPLUS  
 DOCUMENT NUMBER: 107:77869  
 TITLE: First synthesis of a benzoborole  
 AUTHOR(S): Schacht, Wolfgang; Kaufmann, Dieter  
 CORPORATE SOURCE: Inst. Org. Chem., Univ. Hamburg, Hamburg,  
 D-2000/13, Fed. Rep. Ger.  
 SOURCE: Angewandte Chemie (1987), 99(7), 682-3  
 CODEN: ANCEAD; ISSN: 0044-8249  
 DOCUMENT TYPE: Journal  
 LANGUAGE: German  
 OTHER SOURCE(S): CASREACT 107:77869  
 GI



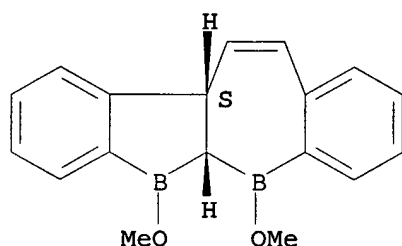
AB Flash vacuum pyrolysis of 2-EtC<sub>6</sub>H<sub>4</sub>BCl<sub>2</sub> at 900° gave the 1st example of title compound I (R<sub>1</sub> = bond) (II), which dimerizes to give 56% diboradibenzoazulene III (R<sub>2</sub> = Cl). The photoelectron spectrum of I (R = R<sub>1</sub> = H) at 925° also showed the presence of II. II was further confirmed by trapping expts. with MeC.tplbond.CMe, DCl, and MeOD to give 10% 1-chloro-2,3-dimethyl-1-benzoborepin, 50% E- and Z-2-DCH:CHC<sub>6</sub>H<sub>4</sub>BCl<sub>2</sub> (1:1 mixture), 35% Z-2-DCH:CHC<sub>6</sub>H<sub>4</sub>B(OMe)<sub>2</sub>, and 15% III (R<sub>2</sub> = OMe).  
 IT 108946-99-2P 108947-04-2P  
 (preparation of)  
 RN 108946-99-2 HCAPLUS  
 CN [1]Benzoborolo[2,3-b][1]benzoborepin, 5,6-dichloro-5,5a,6,10b-tetrahydro-, cis- (9CI) (CA INDEX NAME)

Relative stereochemistry.



RN 108947-04-2 HCAPLUS  
 CN [1]Benzoborolo[2,3-b][1]benzoborepin, 5,5a,6,10b-tetrahydro-5,6-dimethoxy-, cis- (9CI) (CA INDEX NAME)

Relative stereochemistry.



CC 29-4 (Organometallic and Organometalloidal Compounds)  
 IT 108946-99-2P 108947-00-8P 108947-01-9P 108947-02-0P  
 108947-03-1P 108947-04-2P  
 (preparation of)

L12 ANSWER 39 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1987:439895 HCAPLUS

DOCUMENT NUMBER: 107:39895

TITLE: Contribution to boron chemistry. CLXXV.  
 Effect of steric factors on the conformation  
 of diborylamines

AUTHOR(S): Maennig, Detlef; Noeth, Heinrich; Prigge,  
 Helene; Rotsch, Anne Rose; Gopinathan, Sarada;  
 Wilson, J. W.

CORPORATE SOURCE: Inst. Anorg. Chem., Univ. Muenchen, Munich,  
 D-8000/2, Fed. Rep. Ger.

SOURCE: Journal of Organometallic Chemistry (1986),  
 310(1), 1-20  
 CODEN: JORCAI; ISSN: 0022-328X

DOCUMENT TYPE: Journal

LANGUAGE: German

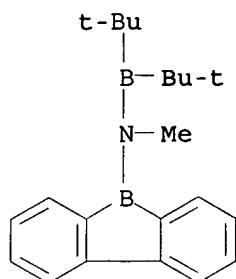
OTHER SOURCE(S): CASREACT 107:39895

AB Ph<sub>2</sub>BN(CMe<sub>3</sub>)SiMe<sub>3</sub> (I) was prepared from LiN(CMe<sub>3</sub>)SiMe<sub>3</sub> and Ph<sub>2</sub>BBr, whereas (R<sub>2</sub>B)<sub>2</sub>NH (II; R = mesityl) and [(R<sub>2</sub>B)<sub>2</sub>N]<sub>3</sub>B (III) were prepared from R<sub>2</sub>BNHLi and R<sub>2</sub>BF or BF<sub>3</sub>.OEt<sub>2</sub>, resp.; R<sub>1</sub>NMeB(CMe<sub>3</sub>)<sub>2</sub> (IV; R<sub>1</sub> = 9-borafluorenyl) was prepared from (Me<sub>3</sub>C)<sub>2</sub>BNMeLi and R<sub>1</sub>Cl. The structures of I-IV, (Ph<sub>2</sub>B)<sub>2</sub>NH and (Ph<sub>2</sub>B)<sub>2</sub>NMe were determined by x-ray crystallog. I has a relatively long B-N bond and a nonplanar C<sub>2</sub>B-N-CSi skeleton. II and III have a coplanar C<sub>2</sub>B-NH-BC<sub>2</sub> (or C<sub>2</sub>B-NH-BN<sub>2</sub>) unit, whereas (Ph<sub>2</sub>B)<sub>2</sub>NH and (Ph<sub>2</sub>B)<sub>2</sub>NMe adopt a twist conformation. IV has an orthogonal conformation, with the (Me<sub>3</sub>C)<sub>2</sub>B group almost perpendicular to the B-N-C-R<sub>1</sub> plane. Two distinctly different B-N bond lengths are observed. Steric effects on conformation and bonding parameters are discussed.

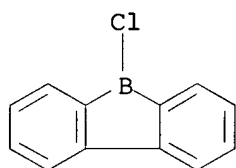
IT 109238-76-8P  
 (preparation and crystal and mol. structure of)

RN 109238-76-8 HCAPLUS

CN 5H-Dibenzoborol-5-amine, N-[bis(1,1-dimethylethyl)boryl]-N-methyl-  
 (9CI) (CA INDEX NAME)

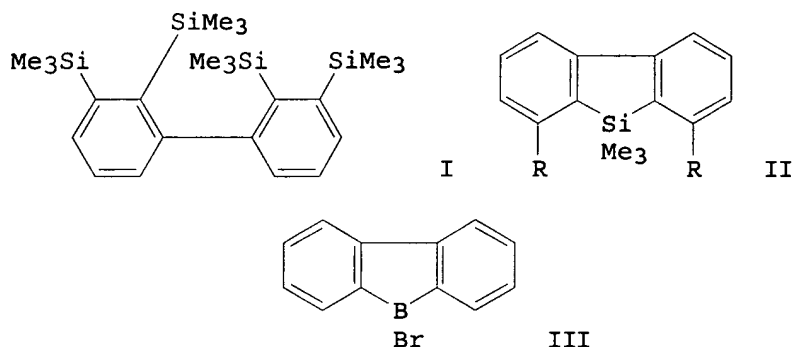


IT 13059-59-1  
 (reaction of, with lithium (di-tert-butylboryl)methylamide)  
 RN 13059-59-1 HCAPLUS  
 CN 5H-Dibenzoborole, 5-chloro- (7CI, 8CI, 9CI) (CA INDEX NAME)



CC 29-4 (Organometallic and Organometalloidal Compounds)  
 IT 109238-73-5P 109238-74-6P 109238-75-7P **109238-76-8P**  
 (preparation and crystal and mol. structure of)  
 IT 13059-59-1  
 (reaction of, with lithium (di-tert-butylboryl)methylamide)

L12 ANSWER 40 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1987:423391 HCAPLUS  
 DOCUMENT NUMBER: 107:23391  
 TITLE: Borylation of arylsilanes. III. Reaction of  
 silylated biphenyls and 9H-9-silafluorenes  
 with tribromoborane  
 AUTHOR(S): Gross, Ulrich; Kaufmann, Dieter  
 CORPORATE SOURCE: Inst. Org. Chem., Univ. Hamburg, Hamburg,  
 D-2000/13, Fed. Rep. Ger.  
 SOURCE: Chemische Berichte (1987), 120(6), 991-4  
 CODEN: CHBEAM; ISSN: 0009-2940  
 DOCUMENT TYPE: Journal  
 LANGUAGE: German  
 OTHER SOURCE(S): CASREACT 107:23391  
 GI



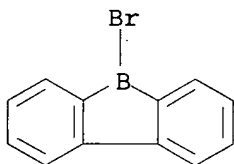
AB The title reactions result either in substitution of a SiMe<sub>3</sub> group by a BBr<sub>2</sub> group or in conversion of a SiMe<sub>3</sub> group to a SiMe<sub>2</sub>Br group. Thus, the 1st path occurs with 3- and 4-(trimethylsilyl)biphenyl and 4,4'-bis(trimethylsilyl)biphenyl, whereas the 2nd path predominates with 2-(trimethylsilyl)- and 2,2'-bis(trimethylsilyl)biphenyl. The analogous reaction of tetrasilylated biphenyl I leads first to silafluorene II (R = SiMe<sub>3</sub>) and then to dibromo derivative II (R = SiMe<sub>2</sub>Br). II (R = H) reacts with BBr<sub>3</sub> to give dibenzoborole III.

IT 97322-60-6P

(preparation of)

RN 97322-60-6 HCAPLUS

CN 5H-Dibenzoborole, 5-bromo- (9CI) (CA INDEX NAME)



CC 29-6 (Organometallic and Organometalloidal Compounds)

IT 97322-60-6P 107384-79-2P 107384-80-5P,  
2-(Dibromoboryl)biphenyl 107384-81-6P, 3-(Dibromoboryl)biphenyl  
107384-82-7P, 4-(Dibromoboryl)biphenyl 107384-83-8P,  
2,2'-Bis(bromodimethylsilyl)biphenyl 107384-84-9P,  
4,4'-Bis(dibromoboryl)biphenyl 107384-85-0P 107384-87-2P  
(preparation of)

L12 ANSWER 41 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1986:19613 HCAPLUS

DOCUMENT NUMBER: 104:19613

TITLE: Derivatives of borole. V. Synthesis of  
[1-(diisopropylamino)borole]metal complexes  
and the Diels-Alder dimer of  
1-(diisopropylamino)borole

AUTHOR(S): Herberich, Gerhard E.; Ohst, Holger

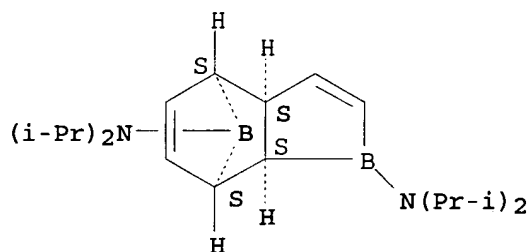
CORPORATE SOURCE: Inst. Anorg. Chem., Tech. Hochsch. Aachen,  
Aachen, D-5100, Fed. Rep. Ger.

SOURCE: Chemische Berichte (1985), 118(11), 4303-13  
CODEN: CHBEAM; ISSN: 0009-2940

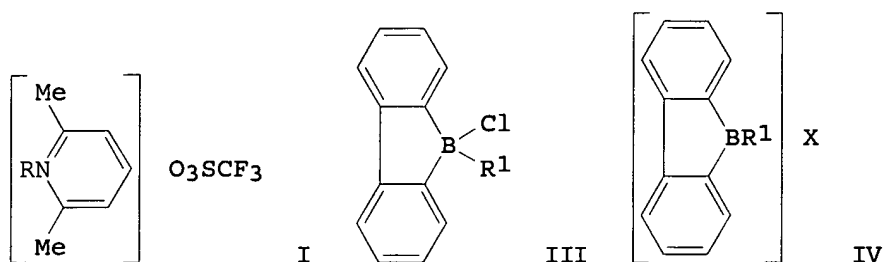
DOCUMENT TYPE: Journal

LANGUAGE: German  
 OTHER SOURCE(S): CASREACT 104:19613  
 GI For diagram(s), see printed CA Issue.  
 AB Oxidation of Li [1-(diisopropylamino)borolenediide] (I) with SnCl<sub>2</sub> forms the Diels-Alder dimer II. I is a versatile reagent for the formation of [1-(diisopropylamino)borole]metal complexes. Suitable substrates are metal halides (CoBr<sub>3</sub>·DME, NiCl<sub>2</sub>·DME), organometallic metal halides, and simple metal halides in the presence of CO. Thermal reactions of II with carbonyl compds. may also give borole complexes. Fifteen compds. of Cr, Mn, Fe, Co, Ni, Ru, and Rh, including triple-decked complexes, are described.  
 IT 99610-64-7P  
 (preparation and reaction of, with iron pentacarbonyl)  
 RN 99610-64-7 HCAPLUS  
 CN 4,7-Borylene-1H-1-benzoborole-1,8-diamine, 3a,4,7,7a-tetrahydro-N,N,N',N'-tetrakis(1-methylethyl)-, (3α,4α,7α,7α)- (9CI) (CA INDEX NAME)

Relative stereochemistry.



CC 29-4 (Organometallic and Organometalloidal Compounds)  
 IT 99610-64-7P  
 (preparation and reaction of, with iron pentacarbonyl)  
 L12 ANSWER 42 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1985:454130 HCAPLUS  
 DOCUMENT NUMBER: 103:54130  
 TITLE: Contribution to the chemistry of boron. 150. Competition between adduct and cation formation in reactions between diorganylborane derivatives and pyridine or lutidines  
 AUTHOR(S): Narula, Chaitanya K.; Noeth, Heinrich  
 CORPORATE SOURCE: Inst. Inorg. Chem., Univ. Munich, Munich, D-8000/2, Fed. Rep. Ger.  
 SOURCE: Inorganic Chemistry (1985), 24(16), 2532-9  
 CODEN: INOCAJ; ISSN: 0020-1669  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 103:54130  
 GI



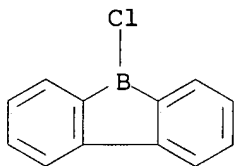
AB 1:1 Coordination compds. are formed in the reaction of pyridine and 2,4-lutidine with  $\text{Bu}_2\text{BO}_3\text{SCF}_3$  and 9-[(trifluoromethyl)sulfonyloxy]-9-borabicyclo[3.3.1]nonane and -9-borabluorene. In contrast, 2,6-lutidine yields the borenium(1+) triflates (I; R =  $\text{Bu}_2\text{B}$ , 9-BBN) with the 1st 2 B triflates. Neutral adducts result from the 3 bases and  $\text{Bu}_2\text{BCl}$  and 9-chloro-9-BBN and -9-borabluorene (II), resp. Their interaction with  $\text{GaCl}_3$  or  $\text{AlCl}_3$  as chloride acceptors leads to N-base exchange in most cases, but  $\text{GaCl}_3$  abstrs.  $\text{Cl}^-$  from II-pyridine III ( $\text{R}_1$  = pyridine) to form the red 9-borabluorene tetrachlorogallate IV ( $\text{X} = \text{GaCl}_4$ ), whereas III ( $\text{R}_1$  = acridine) and  $\text{AlCl}_3$  yield the dark red tetrachloroaluminate IV ( $\text{X} = \text{AlCl}_4$ ) (V). The cation in V shows almost planar acridine and 9-borabluorene moieties, whose planes form an angle of  $62^\circ$ . Characteristic for the cation are short B-C bonds (1.35 Å) and a very long C-C single bond (1.66 Å) of the 5-membered borole ring. The formation of base-stabilized diorganylborenium(1+) ions depends on steric and electronic effects.

IT 13059-59-1P

(formation and reaction of, with pyridines)

RN 13059-59-1 HCAPLUS

CN 5H-Dibenzoborole, 5-chloro- (7CI, 8CI, 9CI) (CA INDEX NAME)



IT 96806-95-0P 96825-32-0P

(preparation and crystal and mol. structure of)

RN 96806-95-0 HCAPLUS

CN Boron(1+), (acridine) [1,1'-biphenyl]-2,2'-diyl-, (T-4)-tetrachloroaluminate(1-) (9CI) (CA INDEX NAME)

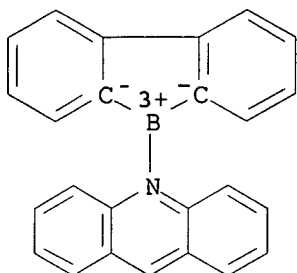
CM 1

CRN 96806-94-9

CMF C25 H17 B N

CCI CCS



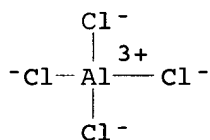


CM 2

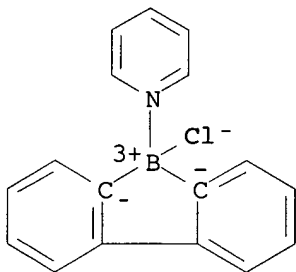
CRN 17611-22-2

CMF Al Cl4

CCI CCS



RN 96825-32-0 HCAPLUS

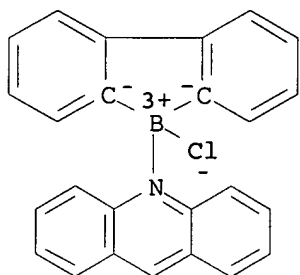
CN Boron, [1,1'-biphenyl]-2,2'-diylchloro(pyridine)-, (T-4)- (9CI)  
(CA INDEX NAME)

IT 96806-93-8P

(preparation and reaction of, with aluminum chloride)

RN 96806-93-8 HCAPLUS

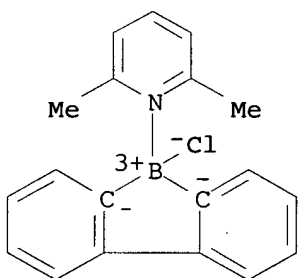
CN Boron, (acridine) [1,1'-biphenyl]-2,2'-diylchloro-, (T-4)- (9CI)  
(CA INDEX NAME)



IT 96806-90-5P

(preparation and reaction of, with gallium chloride)

RN 96806-90-5 HCAPLUS

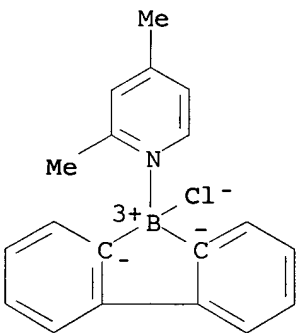
CN Boron, [1,1'-biphenyl]-2,2'-diylchloro(2,6-dimethylpyridine)-,  
(T-4)- (9CI) (CA INDEX NAME)

IT 96806-89-2P 96806-92-7P 96806-97-2P

96806-98-3P 96806-99-4P

(preparation of)

RN 96806-89-2 HCAPLUS

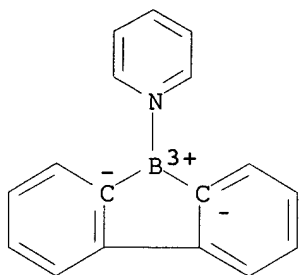
CN Boron, [1,1'-biphenyl]-2,2'-diylchloro(2,4-dimethylpyridine)-,  
(T-4)- (9CI) (CA INDEX NAME)

RN 96806-92-7 HCAPLUS

CN Boron(1+), [1,1'-biphenyl]-2,2'-diyl(pyridine)-,  
(T-4)-tetrachlorogallate(1-) (9CI) (CA INDEX NAME)

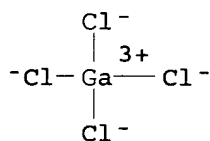
CM 1

CRN 96806-91-6  
 CMF C17 H13 B N  
 CCI CCS

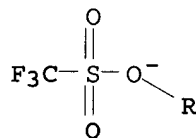
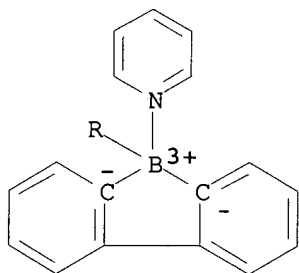


CM 2

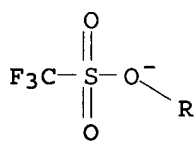
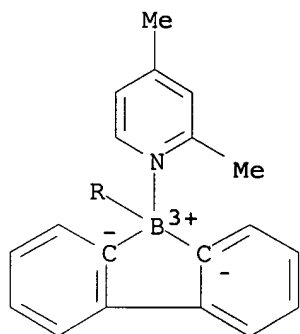
CRN 15201-06-6  
 CMF C14 Ga  
 CCI CCS



RN 96806-97-2 HCAPLUS  
 CN Boron, [1,1'-biphenyl]-2,2'-diyl(pyridine)(trifluoromethanesulfonate-O)-, (T-4)- (9CI) (CA INDEX NAME)

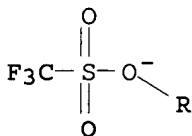
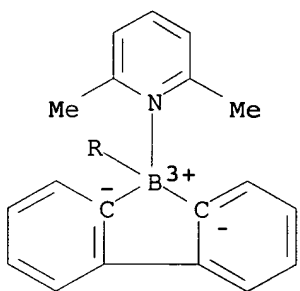


RN 96806-98-3 HCAPLUS  
 CN Boron, [1,1'-biphenyl]-2,2'-diyl(2,4-dimethylpyridine)(trifluoromethanesulfonate-O)-, (T-4)- (9CI) (CA INDEX NAME)



RN 96806-99-4 HCAPLUS

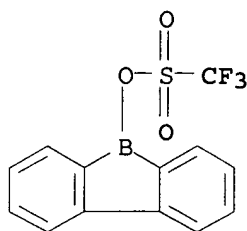
CN Boron, [1,1'-biphenyl]-2,2'-diyl(2,6-dimethylpyridine) (trifluoromethanesulfonato-O)-, (T-4)- (9CI) (CA INDEX NAME)



IT 96806-96-1  
(reaction of, with pyridines)

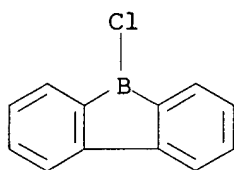
RN 96806-96-1 HCAPLUS

CN 5H-Dibenzoborole, 5-[[trifluoromethylsulfonyl]oxy]- (9CI) (CA INDEX NAME)

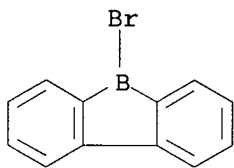


CC 29-4 (Organometallic and Organometalloidal Compounds)  
 Section cross-reference(s): 75  
 IT 13059-59-1P  
 (formation and reaction of, with pyridines)  
 IT 96806-95-0P 96825-32-0P  
 (preparation and crystal and mol. structure of)  
 IT 96806-93-8P  
 (preparation and reaction of, with aluminum chloride)  
 IT 96806-90-5P  
 (preparation and reaction of, with gallium chloride)  
 IT 22086-36-8P 96806-77-8P 96806-78-9P 96806-79-0P  
 96806-80-3P 96806-81-4P 96806-83-6P 96806-84-7P  
 96806-85-8P 96806-86-9P 96806-87-0P 96806-88-1P  
 96806-89-2P 96806-92-7P 96806-97-2P  
 96806-98-3P 96806-99-4P 96807-01-1P  
 96807-02-2P 96807-03-3P  
 (preparation of)  
 IT 1730-69-4 22086-34-6 60669-69-4 62731-43-5  
 96806-96-1  
 (reaction of, with pyridines)

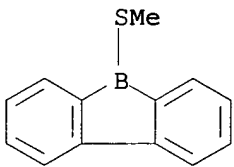
L12 ANSWER 43 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1985:454126 HCAPLUS  
 DOCUMENT NUMBER: 103:54126  
 TITLE: Contributions to the chemistry of boron.  
 CLVI. A convenient route to 9-borabenzofluorenes  
 AUTHOR(S): Narula, Chaitanya K.; Noeth, Heinrich  
 CORPORATE SOURCE: Inst. Anorg. Chem., Univ. Muenchen, Munich,  
 8000/2, Fed. Rep. Ger.  
 SOURCE: Journal of Organometallic Chemistry (1985),  
 281(2-3), 131-4  
 CODEN: JORCAI; ISSN: 0022-328X  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 103:54126  
 AB A convenient high yield synthesis is reported for  
 9-halo-9-borabenzofluorene from o,o'-mercurated di-Ph and boron  
 halides. These in turn are easily converted into methoxy-, and  
 methylthio- and diethylamino derivs.  
 IT 13059-59-1P  
 (preparation and amine substitution of)  
 RN 13059-59-1 HCAPLUS  
 CN 5H-Dibenzoborole, 5-chloro- (7CI, 8CI, 9CI) (CA INDEX NAME)



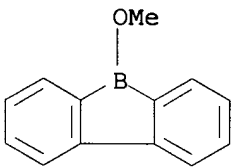
IT 97322-60-6P  
(preparation and methoxy substitution of)  
RN 97322-60-6 HCAPLUS  
CN 5H-Dibenzoborole, 5-bromo- (9CI) (CA INDEX NAME)



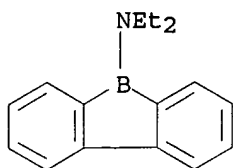
IT 97322-61-7P 97322-62-8P 97322-63-9P  
97341-63-4P 97348-78-2P  
(preparation of)  
RN 97322-61-7 HCAPLUS  
CN 5H-Dibenzoborole, 5-(methylthio)- (9CI) (CA INDEX NAME)



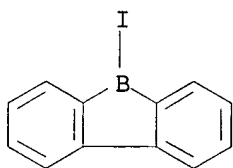
RN 97322-62-8 HCAPLUS  
CN 5H-Dibenzoborole, 5-methoxy- (9CI) (CA INDEX NAME)



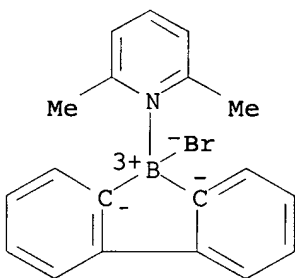
RN 97322-63-9 HCAPLUS  
CN 5H-Dibenzoborol-5-amine, N,N-diethyl- (9CI) (CA INDEX NAME)



RN 97341-63-4 HCAPLUS  
 CN 5H-Dibenzoborole, 5-iodo- (9CI) (CA INDEX NAME)



RN 97348-78-2 HCAPLUS  
 CN Boron, [1,1'-biphenyl]-2,2'-diylbromo(2,6-dimethylpyridine)-, (T-4)- (9CI) (CA INDEX NAME)



CC 29-4 (Organometallic and Organometalloidal Compounds)  
 IT 13059-59-1P  
 (preparation and amine substitution of)  
 IT 97322-60-6P  
 (preparation and methoxy substitution of)  
 IT 97322-61-7P 97322-62-8P 97322-63-9P  
 97341-63-4P 97348-78-2P  
 (preparation of)

L12 ANSWER 44 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1984:629850 HCAPLUS

DOCUMENT NUMBER: 101:229850

TITLE: Ions. 13. Understanding the concepts  
 enantiomer and enantiotope

AUTHOR(S): Schiemenz, Gunter P.; Pistor, Johann

CORPORATE SOURCE: Inst. Org. Chem., Univ. Kiel, Kiel, D-2300,  
 Fed. Rep. Ger.

SOURCE: Chemica Scripta (1984), 23(5), 216-23

CODEN: CSRPB9; ISSN: 0004-2056

DOCUMENT TYPE: Journal

LANGUAGE: German

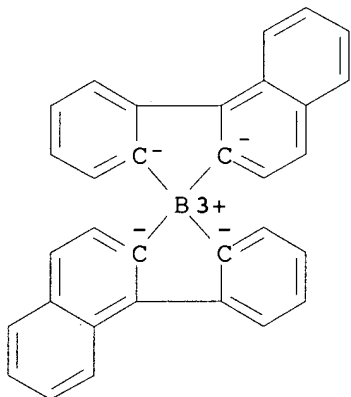
AB The <sup>1</sup>H NMR spectra of chiral sulfonium hexaarylphosphates reveal

that enantiotopism is not a property but an intellectual concept, the conditions of which are never strictly met. Enantiotopic groups are, in fact, diastereotopic. Likewise, enantiomeric compds. do not represent a stereochem. category of their own, but only a special case of diastereomerism. The essential point of enantiotopic groups and enantiomeric compds. is not their similarity but the difference between them.

IT 93303-64-1  
(NMR of)  
RN 93303-64-1 HCAPLUS  
CN Sulfonium, [2,5-bis(1-methylethyl)phenyl]dimethyl-,  
(T-4)-(-)-bis(2,1-naphthalenediyl-1,2-phenylene)borate(1-) (9CI)  
(CA INDEX NAME)

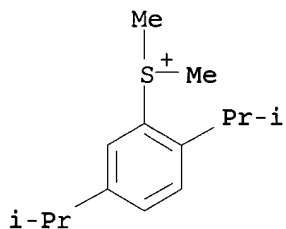
CM 1

CRN 93303-63-0  
CMF C32 H20 B  
CCI CCS



CM 2

CRN 93251-82-2  
CMF C14 H23 S



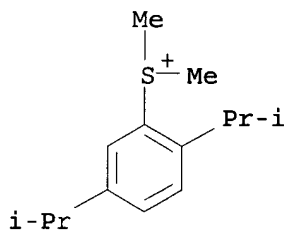
IT 93251-85-5  
(NMR of racemic)  
RN 93251-85-5 HCAPLUS  
CN Sulfonium, [2,5-bis(1-methylethyl)phenyl]dimethyl-,  
(T-4)-bis(2,1-naphthalenediyl-1,2-phenylene)borate(1-) (9CI) (CA  
INDEX NAME)



CM 1

CRN 93251-82-2

CMF C14 H23 S

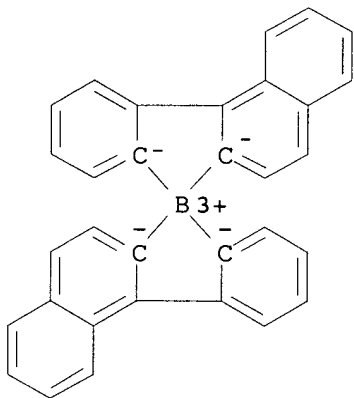


CM 2

CRN 3275-39-6

CMF C32 H20 B

CCI CCS



CC 22-10 (Physical Organic Chemistry)

IT 93251-83-3 93251-84-4 93251-86-6 93251-87-7 93251-88-8

93303-64-1

(NMR of)

IT 93251-85-5 93274-15-8

(NMR of racemic)

L12 ANSWER 45 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1984:571316 HCAPLUS

DOCUMENT NUMBER: 101:171316

TITLE: Compounds of pentacoordinate (10-B-5) and hexacoordinate (12-B-6) hypervalent boron

AUTHOR(S): Lee, David Y.; Martin, J. C.

CORPORATE SOURCE: Dep. Chem., Univ. Illinois, Urbana, IL, 61801, USA

SOURCE: Journal of the American Chemical Society (1984), 106(19), 5745-6

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English  
GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT  
\*

AB Syntheses of the 1st isolable hypervalent 10-B-5 species I, II and III, and of 12-B-6 species IV are described. The  $^1\text{H}$ ,  $^{13}\text{C}$  and  $^{19}\text{F}$  NMR spectra support the assigned hypervalent structures. The UV-visible spectrum of I shows an absorption maximum (397 nm,  $\epsilon = 1650$ ) which is consistent with delocalization of the electrons of the electron-rich, 3-center hypervalent bond into the  $\pi$ -acceptor 5-membered ring. This makes the  $\pi$  system a 6-electron, Hückel bis-ipso aromatic species.

IT 91898-98-5P

(preparation and reaction of, with triflic acid)

RN 91898-98-5 HCAPLUS

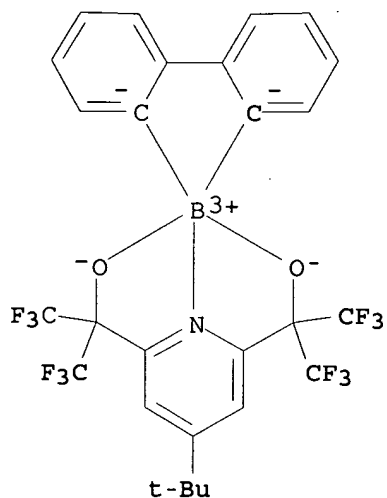
CN Ethanaminium, N,N,N-triethyl-, (TB-5-11)-[1,1'-biphenyl]-2,2'-diyl [4-(1,1-dimethylethyl)- $\alpha,\alpha,\alpha',\alpha'$ -tetrakis(trifluoromethyl)-2,6-pyridinedimethanolato(2-)-N1,O $\alpha$ ,O $\alpha'$ ]borate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 91898-97-4

CMF C27 H19 B F12 N O2

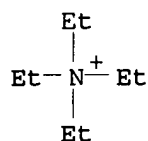
CCI CCS



CM 2

CRN 66-40-0

CMF C8 H20 N

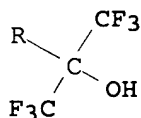
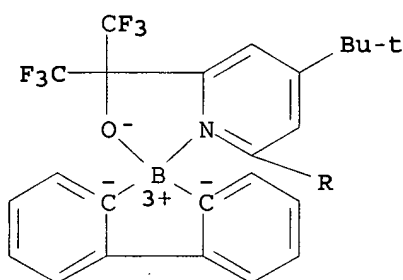


IT 91898-99-6P

(preparation of)

RN 91898-99-6 HCAPLUS

CN Boron, [1,1'-biphenyl]-2,2'-diyl[4-(1,1-dimethylethyl)-  
 $\alpha,\alpha,\alpha',\alpha'$ -tetrakis(trifluoromethyl)-2,6-  
 pyridinedimethanolato-N1,O $\alpha$ ]-, (T-4)- (9CI) (CA INDEX NAME)



CC 29-4 (Organometallic and Organometalloidal Compounds)

IT 91898-98-5P 91899-05-7P

(preparation and reaction of, with triflic acid)

IT 91898-99-6P 91899-02-4P 91899-03-5P 91899-06-8P

(preparation of)

L12 ANSWER 46 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1984:191923 HCAPLUS

DOCUMENT NUMBER: 100:191923

TITLE: The reaction of methylborylene with  
 cyclohexene and some other olefinic compounds  
 AUTHOR(S): Van der Kerk, S. M.; Roos-Venekamp, J. C.; Van  
 Beijnen, A. J. M.; Van der Kerk, G. J. M.

CORPORATE SOURCE: Lab. Org. Chem., State Univ. Utrecht, Utrecht,  
 3522 AD, Neth.

SOURCE: Polyhedron (1983), 2(12), 1337-43  
 CODEN: PLYHDE; ISSN: 0277-5387

DOCUMENT TYPE: Journal

LANGUAGE: English

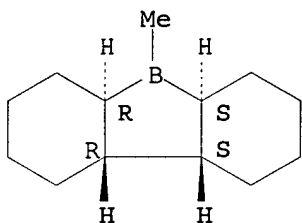
OTHER SOURCE(S): CASREACT 100:191923

AB Some potential methylborylene-generating systems were  
 investigated, using cyclohexene as the trapping agent.  
 Methylborylene, generated by the system 2C8K/MeBBr<sub>2</sub>, reacts with  
 cyclohexene to yield 2-methyl-2-boratricyclo[7.4.0.0<sup>3,8</sup>]tridecane  
 (I). An isomer of I was synthesized along a completely different

route. With the system 2C8K/MeBBr<sub>2</sub>, only cyclic olefins were converted to analogs of I. An acyclic olefin and a conjugated diene yielded only haloboration products. Possible mechanisms leading to the formation of I are discussed. The system NaK5/MeBBr<sub>2</sub> led to explosion.

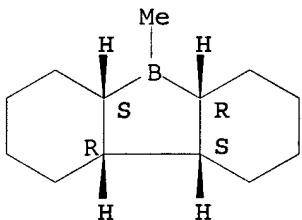
IT 89920-47-8P  
(preparation and spectra of)  
RN 89920-47-8 HCAPLUS  
CN 1H-Dibenzoborole, dodecahydro-5-methyl-,  
(4a $\alpha$ ,5a $\alpha$ ,9a $\beta$ ,9b $\beta$ ) - (9CI) (CA INDEX NAME)

Relative stereochemistry.



IT 89920-46-7  
(separation, spectra, and reaction with ethyllithium)  
RN 89920-46-7 HCAPLUS  
CN 1H-Dibenzoborole, dodecahydro-5-methyl-,  
(4a $\alpha$ ,5a $\alpha$ ,9a $\alpha$ ,9b $\alpha$ ) - (9CI) (CA INDEX NAME)

Relative stereochemistry.



CC 29-4 (Organometallic and Organometalloidal Compounds)  
IT 89920-47-8P  
(preparation and spectra of)  
IT 89920-46-7  
(separation, spectra, and reaction with ethyllithium)

L12 ANSWER 47 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1981:15869 HCAPLUS  
DOCUMENT NUMBER: 94:15869  
TITLE: Ether adducts of organic-alkali metal-boron salts  
INVENTOR(S): Klemann, Lawrence P.; Stogryn, Eugene L.  
PATENT ASSIGNEE(S): Exxon Research and Engineering Co., USA  
SOURCE: U.S., 6 pp.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4224256	A	19800923	US 1979-34578	1979 0430

PRIORITY APPLN. INFO.: <--  
US 1979-34578 A 1979  
0430

AB NH<sub>4</sub><sup>+</sup> BPh<sub>4</sub><sup>-</sup> (17.2 g) was refluxed 4 h with 1.6 g LiH in 80 mL dioxolane to give 22.8 g L<sub>4</sub>Li<sup>+</sup> BPh<sub>4</sub><sup>-</sup> (L = dioxolane). Similarly prepared were 10 L<sub>4</sub>Li<sup>+</sup> BR<sub>4</sub><sup>-</sup> (L = dioxolane, Et<sub>2</sub>O, MeOCH<sub>2</sub>CH<sub>2</sub>OMe; R = p- and m-CF<sub>3</sub>C<sub>6</sub>H<sub>4</sub>, p-FC<sub>6</sub>H<sub>4</sub>, 2-thienyl).

IT 75964-84-0P  
(preparation of)

RN 75964-84-0 HCAPLUS

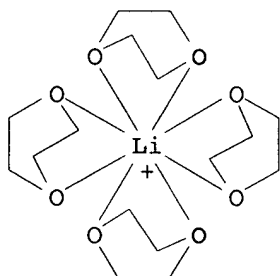
CN Lithium(1+), tetrakis(1,4-dioxane-O1,O4)-, (T-4)-bis([1,1'-biphenyl]-2,2'-diyl)borate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 75964-71-5

CMF C16 H32 Li O8

CCI CCS

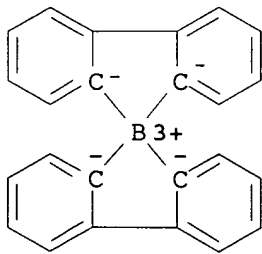


CM 2

CRN 35861-06-4

CMF C24 H16 B

CCI CCS

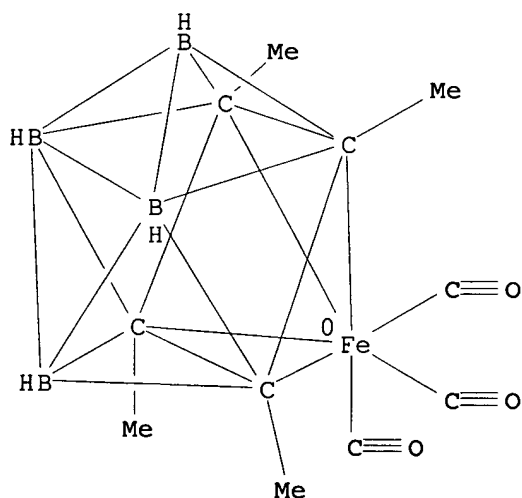


IC C07F005-02  
 INCL 568006000  
 CC 29-4 (Organometallic and Organometalloidal Compounds)  
 IT 75964-72-6P 75964-73-7P 75964-75-9P 75964-76-0P  
 75964-77-1P 75964-79-3P 75964-80-6P 75964-82-8P  
 75964-83-9P 75964-84-0P 75965-35-4P 75978-35-7P  
 (preparation of)

L12 ANSWER 48 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1980:471920 HCAPLUS  
 DOCUMENT NUMBER: 93:71920  
 TITLE: Photoinsertion of alkynes into a ferraborane.  
 Preparation and characterization of a novel  
 tetracarbon carborane  
 AUTHOR(S): Fehlner, Thomas P.  
 CORPORATE SOURCE: Dep. Chem., Univ. Notre Dame, Notre Dame, IN,  
 46556, USA  
 SOURCE: Journal of the American Chemical Society  
 (1980), 102(10), 3424-30  
 CODEN: JACSAT; ISSN: 0002-7863  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB Photolysis of the nido ferraborane  $B_4H_8Fe(CO)_3$  and an alkyne  
 $RC.tplbond.CR$  ( $R = Me, Ph$ ) gave good yields of tetracarbon  
 carboranes  $R_4C_4B_4H_4$ . The C-tetra-Me derivative was characterized  
 primarily by mass and NMR spectroscopy. An intermediate in the  
 formation of this carborane,  $Me_4C_4B_4H_4Fe(CO)_3$ , was isolated and  
 partially characterized. Six- and eight-carbon carboranes were  
 also likely in this system. In contrast, the isoelectronic  
 cyclobutadienyliron compound  $C_4H_4Fe(CO)_3$  gives benzenes when  
 photolyzed with alkynes.

IT 74469-65-1P  
 (preparation of)  
 RN 74469-65-1 HCAPLUS  
 CN Iron, tricarbonyl[ $\eta^4$ -tetrahydro-C,C',C'',C'''-  
 tetramethyltetracarbaoctaborato(2-)]- (9CI) (CA INDEX NAME)

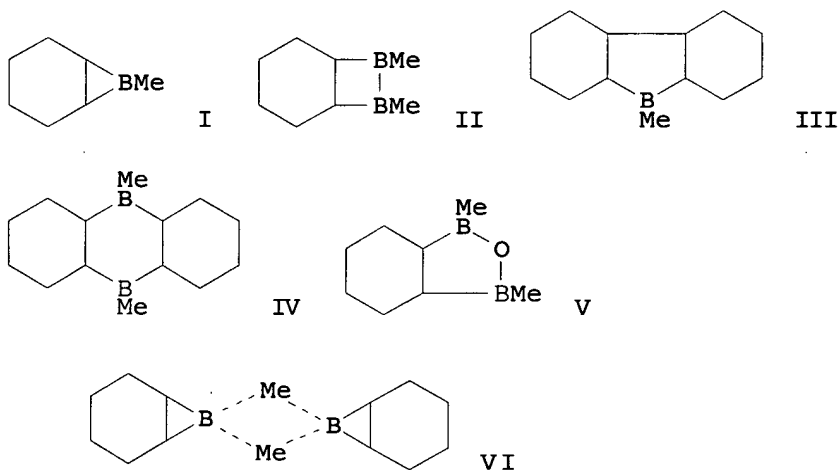


CC 29-12 (Organometallic and Organometalloidal Compounds)  
 IT 74417-78-0P 74417-79-1P 74417-80-4P 74453-94-4P

74469-65-1P

(preparation of)

L12 ANSWER 49 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1977:190050 HCAPLUS  
 DOCUMENT NUMBER: 86:190050  
 TITLE: The generation and some reactions of methylborylene  
 AUTHOR(S): Van der Kerk, S. M.; Boersma, J.; Van der Kerk, G. J. M.  
 CORPORATE SOURCE: Lab. Org. Chem., State Univ., Utrecht, Neth.  
 SOURCE: Tetrahedron Letters (1976), (51), 4765-6  
 CODEN: TELEAY; ISSN: 0040-4039  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 GI



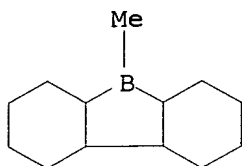
AB MeB:, generated from MeBBr<sub>2</sub> and NaK<sub>5</sub>, reacted with cyclohexene to give, on the basis of gas chromatog. and mass spectral anal., the reaction products I-V. Reaction of MeB:, generated from MeBBr<sub>2</sub> and C8K, with cyclohexene gave only MeBBr<sub>2</sub> and a compound having the formula C<sub>7</sub>H<sub>13</sub>B (I). Further gas chromatog. and mass spectral anal. showed the compound to exist as the dimer VI rather than the monomer I and represents the first example of a simple B-C compound in which B has attained tetracoordination by means of forming two boron-carbon two electron-three center bonds.

IT 62785-44-8P

(preparation of)

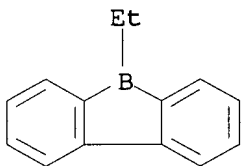
RN 62785-44-8 HCAPLUS

CN 1H-Dibenzoborole, dodecahydro-5-methyl- (9CI) (CA INDEX NAME)



CC 29-4 (Organometallic and Organometalloidal Compounds)  
 IT 62785-42-6P 62785-43-7P 62785-44-8P 62785-45-9P  
 62785-46-0P  
 (preparation of)

L12 ANSWER 50 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1975:111419 HCAPLUS  
 DOCUMENT NUMBER: 82:111419  
 TITLE: Organic quantum chemistry. XXXIII.  
 Electronic spectra and rotational barriers of  
 vinylborane, allyl cation, and related  
 compounds  
 AUTHOR(S): Allinger, Norman L.; Siefert, John H.  
 CORPORATE SOURCE: Dep. Chem., Univ. Georgia, Athens, GA, USA  
 SOURCE: Journal of the American Chemical Society  
 (1975), 97(4), 752-60  
 CODEN: JACSAT; ISSN: 0002-7863  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB The geometrics of the ground states and the rotational barriers  
 were studied for vinylborane (I) and di- and trivinylboranes by  
 the INDO method. For I, ab initio calcns. were also carried out.  
 Using these geometries, the variable electronegativity SCF method  
 for the  $\pi$  system was developed so that after configuration  
 interaction, including all singly and doubly excited  
 configurations, calcns. of the electronic spectra were possible.  
 These calcns. were applied to more complicated unsatd. B derivs.  
 Similar studies on the related allyl ions were briefly mentioned.  
 The calculated spectra show large systematic errors, believed due  
 mainly to hyperconjugation, which was not taken into account.  
 IT 14855-16-4  
 (UV spectrum of, MO calcn. of)  
 RN 14855-16-4 HCAPLUS  
 CN 5H-Dibenzoborole, 5-ethyl- (7CI, 8CI, 9CI) (CA INDEX NAME)

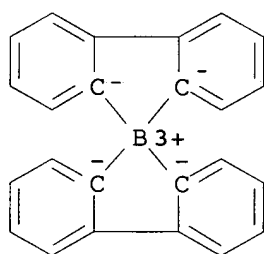


CC 22-8 (Physical Organic Chemistry)  
 IT 287-87-6 14855-16-4 16703-13-2 54963-15-4  
 54963-16-5 54963-17-6 54963-18-7  
 (UV spectrum of, MO calcn. of)

L12 ANSWER 51 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1975:111284 HCAPLUS



DOCUMENT NUMBER: 82:111284  
TITLE: Rearrangements of organometallic compounds.  
XII. Generation of boracardenoid and  
boracyclopropene intermediates from the  
photolysis of tetraorganoborate salts in  
aprotic media  
AUTHOR(S): Eisch, John J.; Tamao, Kohei; Wilcsek, Robert  
J.  
CORPORATE SOURCE: Dep. Chem., State Univ. New York, Binghamton,  
NY, USA  
SOURCE: Journal of the American Chemical Society  
(1975), 97(4), 895-7  
CODEN: JACSAT; ISSN: 0002-7863  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Irradiation of NaBPh<sub>4</sub> in MeOCH<sub>2</sub>CH<sub>2</sub>OMe and THF, under nitrogen led to  
two photoreactions: a) the principal one yielding, directly, PhPh  
and NaBPh<sub>2</sub>; and b) the minor one, involving the formation of  
sodium arylborohydrides, where the aryl group was phenyl,  
biphenyl, m-terphenyl or p-terphenyl. NaBPh<sub>2</sub> was  
characterized chemically by its treatment with DOAc to generate D<sub>2</sub>  
and by its carbene-like addition to PhC.tplbond.CPh to yield, after  
deuterolytic work-up, deuterated cis-stilbenes. The reaction with  
PhC.tplbond.CPh caused the transitory generation of the  
boracyclopropene nucleus as the diphenyl-  
(diphenylvinylene)borate(III) salt. This was substantiated by a  
highly selective and stereospecific 1,2-phenyl shift in the  
photorearrangement of LiBPh<sub>3</sub>(C.tplbond.CPh). Examination of the  
analogous photolytic behavior of other tetraorganoborate salts  
established the geometrical constraints and intraionic character  
of the biaryl formation in the principal photoreaction.  
IT 54873-17-5  
(photochem. reaction of)  
RN 54873-17-5 HCAPLUS  
CN Borate(1-), bis([1,1'-biphenyl]-2,2'-diyl)-, sodium, (T-4)- (9CI)  
(CA INDEX NAME)

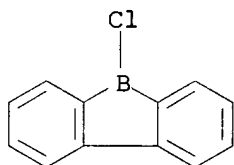


● Na<sup>+</sup>

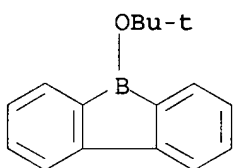
CC 22-4 (Physical Organic Chemistry)  
IT 54873-15-3 54873-16-4 54873-17-5  
(photochem. reaction of)

L12 ANSWER 52 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1975:86313 HCAPLUS

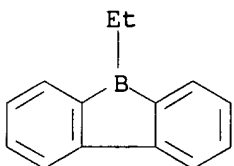
DOCUMENT NUMBER: 82:86313  
TITLE: Boron compounds. XXVIII.  
1,2-(2,2'-Biphenylylene)diboranes(6)  
AUTHOR(S): Koester, Roland; Willemsen, Hans G.  
CORPORATE SOURCE: Max-Planck-Inst. Kohlenforsch., Muelheim/Ruhr,  
Fed. Rep. Ger.  
SOURCE: Justus Liebigs Annalen der Chemie (1975),  
Volume Date 1974, (11), 1843-50  
CODEN: JLACBF; ISSN: 0075-4617  
DOCUMENT TYPE: Journal  
LANGUAGE: German  
AB Reaction of 2-biphenylyldiethylborane and ethyldiborane(6) gave  
.apprx.80% 1,2-diethyl-1,2-(2,2'-biphenylylene)diborane(6) (I).  
Reaction of I with B<sub>2</sub>H<sub>6</sub> and BF<sub>3</sub>.Et<sub>2</sub>O gave 1,2-(2,2'-  
biphenylylene)diborane-(6) and 1,2;1,2-bis(2,2'-  
biphenylylene)diborane(6), resp. Reaction of I with Me<sub>3</sub>COH and BCl<sub>3</sub>  
gave colorless 9-tert-butoxy-9-borafluorene and yellow  
9-chloro-9-borafluorene, resp.  
IT 13059-59-1P  
(preparation and salt formation from)  
RN 13059-59-1 HCAPLUS  
CN 5H-Dibenzoborole, 5-chloro- (7CI, 8CI, 9CI) (CA INDEX NAME)



IT 55365-17-8P  
(preparation of)  
RN 55365-17-8 HCAPLUS  
CN 5H-Dibenzoborole, 5-(1,1-dimethylethoxy)- (9CI) (CA INDEX NAME)



IT 14855-16-4  
(reaction with ethyldiborane)  
RN 14855-16-4 HCAPLUS  
CN 5H-Dibenzoborole, 5-ethyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



CC 29-4 (Organometallic and Organometalloidal Compounds)  
IT 13059-59-1P  
(preparation and salt formation from)  
IT 55365-17-8P 55802-26-1P 55802-27-2P  
(preparation of)  
IT 14855-16-4  
(reaction with ethyldiborane)

L12 ANSWER 53 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1975:72416 HCAPLUS

DOCUMENT NUMBER: 82:72416

TITLE: Expanded Hueckel calculation of hypothetical systems. Carbododecahedron (C20) and different diboracarbododecahedrons (B2C18)

AUTHOR(S): Bochvar, D. A.; Gal'pern, E. G.

CORPORATE SOURCE: Inst. Elementoorg. Soedin., Moscow, USSR

SOURCE: Izvestiya Akademii Nauk SSSR, Seriya

Khimicheskaya (1974), (10), 2367-9

CODEN: IASKA6; ISSN: 0002-3353

DOCUMENT TYPE: Journal

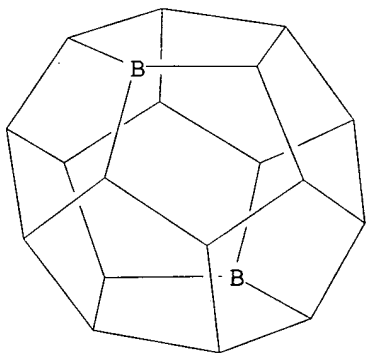
LANGUAGE: Russian

AB Title calcns. for (hypothetical) carbododecahedron (C20) and 1,2- and 1,6-diboracarbododecahedrons indicated that they are capable of existence.

IT 54350-39-9 54350-40-2  
(MO calcns. for)

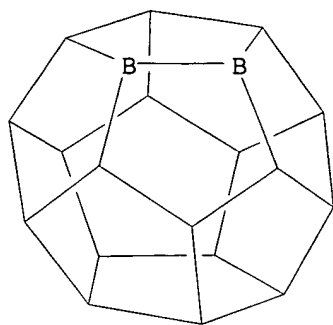
RN 54350-39-9 HCAPLUS

CN 1,20-Dibora[5]fullerane-C20-Ih (9CI) (CA INDEX NAME)



RN 54350-40-2 HCAPLUS

CN 5,2,1,6,3,4-[2,3]Butanediyl[1,4]diylidenecyclopenta[3',4']pentalen  
o[6',1',2':2,3,4]pentaleno[1,6-cd]-1,2-diborole, tetradecahydro-  
(9CI) (CA INDEX NAME)



CC 22-8 (Physical Organic Chemistry)  
 IT 4493-23-6 54350-39-9 54350-40-2  
 (MO calcns. for)

L12 ANSWER 54 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1975:42485 HCAPLUS

DOCUMENT NUMBER: 82:42485

TITLE: NMR studies of boron compounds. VIII.  
 Comparison of boron-11 and nitrogen-14 NMR  
 data of tricoordinate boron compounds with  
 carbon-13 and nitrogen-14 NMR data of carbonic  
 acid derivatives and carbonium ions

AUTHOR(S): Noeth, Heinrich; Wrackmeyer, Bernd  
 CORPORATE SOURCE: Inst. Anorg. Chem., Univ. Muenchen, Munich,  
 Fed. Rep. Ger.

SOURCE: Chemische Berichte (1974), 107(9), 3089-103  
 CODEN: CHBEAM; ISSN: 0009-2940

DOCUMENT TYPE: Journal

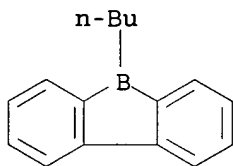
LANGUAGE: German

AB A comparison of  $^{11}\text{B}$ -,  $^{14}\text{N}$ -, and  $^{13}\text{C}$ -NMR data revealed a linear  
 relation between the  $^{14}\text{N}$  shifts of aminoboranes, e.g.,  $\text{B}(\text{NMe}_2)_3$  or  
 $\text{Me}_2\text{BNMe}_2$ , and isoelectronic and(or) isosteric (aliphatic or  
 heterocyclic) amines or ammonium ions.

IT 7760-71-6  
 (boron-11 NMR of)

RN 7760-71-6 HCAPLUS

CN 5H-Dibenzoborole, 5-butyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



CC 22-2 (Physical Organic Chemistry)

IT 121-43-7 353-46-8 593-90-8 960-71-4 1803-36-7 4443-43-0

4542-61-4 5158-50-9 5846-37-7 7216-97-9 7318-81-2

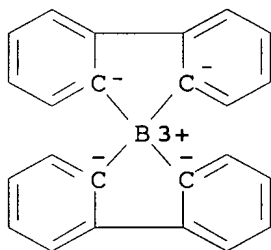
7760-71-6 12538-96-4 13283-31-3, properties

15909-61-2 19163-04-3 19163-14-5 19163-15-6 22405-02-3

54098-91-8 54098-92-9 54098-93-0 54098-94-1 54228-72-7

(boron-11 NMR of)

L12 ANSWER 55 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1974:437022 HCAPLUS  
 DOCUMENT NUMBER: 81:37022  
 TITLE: Rearrangements of organometallic compounds.  
 XI. Duality of mechanism for 1,2-aryl  
 migrations in the oxidation of tetraarylborate  
 salts  
 AUTHOR(S): Eisch, John J.; Wilcsek, Robert J.  
 CORPORATE SOURCE: Dep. Chem., State Univ. New York, Binghamton,  
 NY, USA  
 SOURCE: Journal of Organometallic Chemistry (1974),  
 71(2), C21-C24  
 CODEN: JORCAI; ISSN: 0022-328X  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Individual oxidative couplings of K phenyltri-m-tolylborate and K  
 phenyltri-p-tolylborate with transition metal ions, organic oxidants  
 and halogen sources revealed a duality of mechanism, namely  
 electron-transfer and electrophilic pathways. Not only the ratios  
 of the resp. bitolyls and methylbiphenyls obtained, but also the  
 behavior of K bis(o,o'-biphenylene)borate, showed  
 that bridging of the migrating group is important for iodine  
 oxidns., but not for Ce(IV) oxidns.  
 IT 53113-49-8  
 (oxidation of)  
 RN 53113-49-8 HCAPLUS  
 CN Borate(1-), bis([1,1'-biphenyl]-2,2'-diyl)-, potassium, (T-4)-  
 (9CI) (CA INDEX NAME)



● K<sup>+</sup>

CC 22-5 (Physical Organic Chemistry)  
 IT 53113-49-8  
 (oxidation of)

L12 ANSWER 56 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1973:58494 HCAPLUS  
 DOCUMENT NUMBER: 78:58494  
 TITLE: Synthesis of 5- and 6-membered carbon-boron  
 heterocycles by pyrolysis of  
 pyridine-arylboranes  
 AUTHOR(S): Van Veen, R.; Bickelhaupt, F.  
 CORPORATE SOURCE: Scheikundig Lab., Vrije Univ., Amsterdam,  
 Neth.  
 SOURCE: Journal of Organometallic Chemistry (1973),

47(1), 33-8

CODEN: JORCAI; ISSN: 0022-328X

DOCUMENT TYPE:

Journal

LANGUAGE:

English

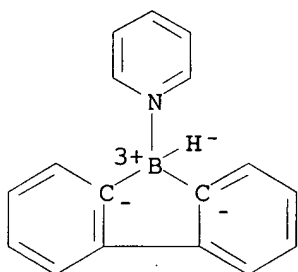
AB Pyrolysis of pyridine(2-benzylphenyl)borane and pyridine(2-benzhydrylphenyl)borane yielded the 9,10-dihydro-9-boraanthracene system. The ring-closed products were isolated as the ethanolamine esters. An analogous conversion of pyridine-2-biphenylborane gave pyridine-9-borafluorene.

IT 40374-82-1P

(preparation of)

RN 40374-82-1 HCAPLUS

CN Boron, [1,1'-biphenyl]-2,2'-diylhydro(pyridine)-, (T-4)- (9CI)  
(CA INDEX NAME)



CC 29-4 (Organometallic and Organometalloidal Compounds)

IT 7147-07-1P 28776-05-8P 40276-63-9P 40276-64-0P 40276-66-2P

40374-82-1P 40374-83-2P 40374-84-3P

(preparation of)

L12 ANSWER 57 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1972:427134 HCAPLUS

DOCUMENT NUMBER: 77:27134

TITLE: Dynamics of intramolecular triplet exciton transfer using electron spin resonance

AUTHOR(S): Shain, Albert L.

CORPORATE SOURCE: Dep. Chem., Washington Univ., St. Louis, MO, USA

SOURCE: Journal of Chemical Physics (1972), 56(12), 6201-12

CODEN: JCPSA6; ISSN: 0021-9606

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The rate of intramol. triplet exciton transfer in a series of congeneric dimeric systems composed of 2 biphenylene subunits linked by an insulating tetravalent Group IVA atom was studied as a function of temperature using ESR. A 1st-order d. matrix theory including the transfer process was developed. The transfer model assumed a coupling between the "high-field" monomer magnetic substrates with the same m5 only (T2 process), without inducing transitions between states of different m3 (T1 processes). By comparing computer simulated line shapes with the exptl. spectra, activation energies for the dynamic process were extracted. These energies are attributed to low-frequency torsional modes which are active in vibronically coupling the monomer sites. A discussion based on electron exchange and on vibronic coupling is given, and an order of magnitude calcn. of the transfer

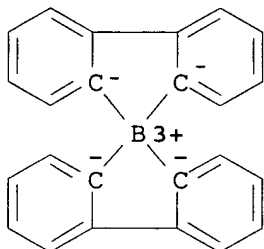
probability based on the resonance excitation transfer mechanism yields nos. agreeing satisfactorily with the transfer rates obtained from experiment

IT 25360-44-5

(ESR of, intramol. triplet exciton transfer dynamics in relation to)

RN 25360-44-5 HCAPLUS

CN Borate(1-), bis([1,1'-biphenyl]-2,2'-diyl)-, cesium, (T-4)- (9CI)  
(CA INDEX NAME)



● Cs<sup>+</sup>

CC 73-4 (Spectra by Absorption, Emission, Reflection, or Magnetic Resonance, and Other Optical Properties)

Section cross-reference(s): 22

IT 86-73-7 159-66-0 159-67-1 159-68-2 3151-19-7 5550-08-3

25105-80-0 25360-44-5 37020-91-0

(ESR of, intramol. triplet exciton transfer dynamics in relation to)

L12 ANSWER 58 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1970:492904 HCAPLUS

DOCUMENT NUMBER: 73:92904

TITLE: Calculation of excited state and ground state properties of conjugated heteroatomic molecules using a single SCF-LCAO-CI method including  $\sigma$ -polarization

AUTHOR(S): Hammond, Howell A.

CORPORATE SOURCE: Res. Lab., Eastman Kodak Co., Rochester, NY, USA

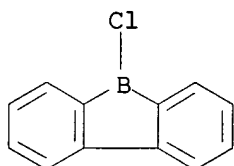
SOURCE: Theoretica Chimica Acta (1970), 18(3), 239-49  
CODEN: TCHAAM; ISSN: 0040-5744

DOCUMENT TYPE: Journal

LANGUAGE: English

AB An SCF- $\pi$  method including variable  $\pi$ -electronegativity and  $\sigma$ -polarization is described and applied to the calcn. of electronic transitions and ionization potentials of a large variety of heteroat. mols. containing B, N, O, F, Cl, and S. The necessary atomic parameters are the Slater effective nuclear charges and published ionization potentials, electron affinities and  $\sigma$ -orbital electronegativities for trigonally hybridized atoms. The program automatically adjusts the initial atomic parameters to reflect the mol. environment without the intervention of the user. The agreement between calculated and observed transition energies, oscillator strengths, and ionization

potentials is very good.  
 IT 13059-59-1  
 (mol. orbitals of, mol. consts. in relation to)  
 RN 13059-59-1 HCAPLUS  
 CN 5H-Dibenzoborole, 5-chloro- (7CI, 8CI, 9CI) (CA INDEX NAME)



CC 73 (Spectra by Absorption, Emission, Reflection, or Magnetic Resonance, and Other Optical Properties)  
 IT 91-58-7 98-80-6 98-95-3, properties 100-47-0 106-51-4, properties 108-95-2, properties 271-89-6 273-53-0 486-25-9 873-51-8 2622-57-3 13059-59-1 16969-45-2, properties (mol. orbitals of, mol. consts. in relation to)

L12 ANSWER 59 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1970:121610 HCAPLUS

DOCUMENT NUMBER: 72:121610

TITLE: Boron containing analog of the norbornene ring system

AUTHOR(S): Grisdale, Patrick J.; Williams, Jack L. R.

CORPORATE SOURCE: Res. Lab., Eastman Kodak Co., Rochester, NY, USA

SOURCE: Journal of Organometallic Chemistry (1970), 22(2), C19-C21

CODEN: JORCAI; ISSN: 0022-328X

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Tetramethylammonium 1,1,2,3,4,5-hexaphenylborolate (I), m. 227-30°, was prepared (yield 70%) from LiCPh:CPHCPH:CPhLi with Ph<sub>2</sub>BCl and Me<sub>4</sub>NBr. I undergoes facile Diels-Alder reaction with  $\pi$ -electron-poor dienophiles. Thus, I reacts with maleic anhydride in Me<sub>2</sub>CO to give tetramethylammonium 1,4,5,6,7,7-hexaphenyl-7-boratobicyclo[2.2.1]hept-5-ene-2,3-dicarboxylic anhydride, m. 185° (decomposition). Similarly, N-phenyl and N-( $\alpha$ -pyridyl)-maleimide react with I to give Diels-Alder adducts. The compds. were characterized by ir, NMR, and mass spectra.

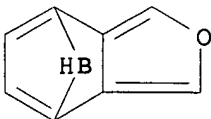
IT 27301-27-5DP, 4,7-Boryleneisobenzofuran, derivs.

28627-98-7P

(preparation of)

RN 27301-27-5 HCAPLUS

CN 4,7-Boryleneisobenzofuran (8CI, 9CI) (CA INDEX NAME)



RN 28627-98-7 HCAPLUS



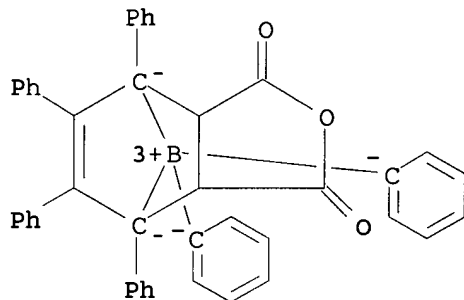
CN Ammonium, tetramethyl-, (5,6-dicarboxy-1,2,3,4-tetraphenyl-2-cyclohexen-1,4-ylene)diphenylborate(1-), cyclic anhydride (8CI)  
(CA INDEX NAME)

CM 1

CRN 47868-73-5

CMF C44 H32 B O3

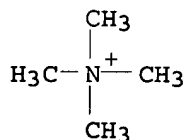
CCI CCS



CM 2

CRN 51-92-3

CMF C4 H12 N



CC 29 (Organometallic and Organometalloidal Compounds)  
IT 806-71-3DP, 1,3-Butadiene, 1,2,3,4-tetraphenyl-, boron complexes  
27301-26-4DP, 7-Borabicyclo[2.2.1]heptane, derivs.  
27301-27-5DP, 4,7-Boryleneisobenzofuran, derivs.  
28627-97-6P 28627-98-7P  
(preparation of)

L12 ANSWER 60 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1969:523312 HCAPLUS

DOCUMENT NUMBER: 71:123312

TITLE: Intramolecular triplet exciton transfer in some noncoplanar aromatic systems

AUTHOR(S): Shain, Albert L.; Ackerman, J. P.; Teague, M. Warfield

CORPORATE SOURCE: Washington Univ., St. Louis, MO, USA

SOURCE: Chemical Physics Letters (1969), 3(7), 550-1

CODEN: CHPLBC; ISSN: 0009-2614

DOCUMENT TYPE: Journal

LANGUAGE: English

GI For diagram(s), see printed CA Issue.

AB E.S.R. spectra were recorded of the lowest triplet state of some noncoplanar bis(2,2'-biphenylene)spirans (I) at

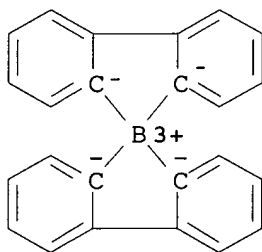
4.2-200°K. Spectra of I [M = C, B-(Cs+), or N+(Br-)] indicate intramol. migration of triplet exciton transfer (at a rate of  $\geq 1.5 \times 10^9$  sec.<sup>-1</sup> at 77°K. for M = C). At 18°K., the triplet exciton is localized in one of the biphenylene subunits and the spectrum is characteristic of a system with C<sub>2v</sub> symmetry (E = 29 gauss). At 77°K., the exciton transfers rapidly between the 2 biphenylylenes and the spectrum becomes characteristic of the whole mol. of D<sub>2d</sub> symmetry (E = 0). For I (M = C), a single rate constant describes the temperature dependence between 20 and 40°K. and indicates an activation energy of .apprx.100 cal./mole; from 40 to 60°K., the activation energy is .apprx.300 cal./mole. These activation energies correspond to low frequency torsional motions of .apprx.35 and 100 cm.<sup>-1</sup> E.S.R. spectra of I (M = Si or Ge) are essentially temperature independent and are characteristic of nonaxially sym., and axially sym. systems, resp. The differences in spectra of the latter 2 compds. are due to the vacant d-orbitals on the spiro atoms.

IT 25360-44-5

(energy transfer in excited mols. of)

RN 25360-44-5 HCAPLUS

CN Borate(1-), bis([1,1'-biphenyl]-2,2'-diyl)-, cesium, (T-4)- (9CI)  
(CA INDEX NAME)



● Cs<sup>+</sup>

CC 22 (Physical Organic Chemistry)

IT 159-66-0 159-67-1 159-68-2 25105-80-0 25360-44-5  
(energy transfer in excited mols. of)

L12 ANSWER 61 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1969:68452 HCAPLUS

DOCUMENT NUMBER: 70:68452

TITLE: Boron compounds. XVI. Haloorganoboranes by catalytic disproportionation of trihaloboranes and organoboranes

AUTHOR(S): Koester, Roland; Grassberger, Maximilian A.

CORPORATE SOURCE: Max-Planck-Inst. Kohlenforsch., Muelheim/Ruhr, Fed. Rep. Ger.

SOURCE: Justus Liebig's Annalen der Chemie (1969), 719, 169-86

CODEN: JLACBF; ISSN: 0075-4617

DOCUMENT TYPE: Journal

LANGUAGE: German

AB RBX2 and R2BX (where (R = Me, Et, Pr, iso-Pr, Bu, Ph, cyclohexyl,

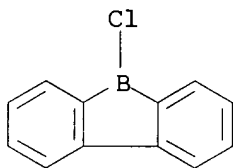
C<sub>8</sub>H<sub>17</sub>, C<sub>10</sub>H<sub>21</sub>, or PhCH<sub>2</sub>; and X = Cl, F, Br, or I), were prepared by disproportionation of BX<sub>3</sub> with BR<sub>3</sub> in the presence of borohydrides. Yields were 75-99%. Borolanes, boraindane, borafluorenes and other boronated heterocycles were halogenated at the B atom by BX<sub>3</sub> (where X = Cl or Br). With BF<sub>3</sub>, association compounds of the fluoroboronated heterocycle with BF<sub>3</sub> were obtained. RBI<sub>2</sub> were easily prepared from R<sub>2</sub>BBR<sub>2</sub> and iodine.

IT 13059-59-1P 22072-86-2P

(preparation of)

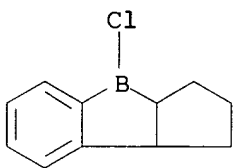
RN 13059-59-1 HCAPLUS

CN 5H-Dibenzoborole, 5-chloro- (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 22072-86-2 HCAPLUS

CN Benzo[b]cyclopenta[d]borole, 4-chloro-1,2,3,3a,4,8b-hexahydro- (8CI) (CA INDEX NAME)



CC 29 (Organometallic and Organometalloidal Compounds)

IT 280-64-8P 367-45-3P 430-41-1P 589-69-5P 691-36-1P  
 868-81-5P 1692-29-1P 1730-69-4P 1739-53-3P 3677-81-4P  
 3857-03-2P 4151-77-3P 5158-50-9P 5314-83-0P 5674-70-4P  
 13059-59-1P 13317-60-7P 13317-61-8P 14089-96-4P  
 17933-10-7P 19162-10-8P 19162-11-9P 20905-32-2P  
 21960-40-7P 21970-18-3P 21970-20-7P 21970-21-8P  
 22072-73-7P 22072-74-8P 22072-75-9P 22072-76-0P,  
 1H-1-Benzoborole, 1-[o-(2,3-dihydro-3-methyl-1H-1-benzoborol-1-yl)-  
 β-methylphenethyl]-2,3-dihydro-3-methyl- 22072-77-1P  
 22072-78-2P 22072-81-7P 22072-86-2P 22086-34-6P  
 22086-35-7P 22086-36-8P 22086-37-9P 22086-40-4P  
 22086-41-5P 22086-42-6P 22086-43-7P 22086-44-8P  
 22086-45-9P 22086-46-0P 22086-47-1P 22086-51-7P  
 22086-53-9P 22086-59-5P 22086-60-8P 22086-61-9P  
 22086-63-1P 22086-64-2P 22086-65-3P 22137-00-4P  
 22405-15-8P 23221-81-0P 23221-82-1P  
 (preparation of)

L12 ANSWER 62 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

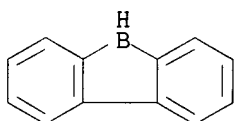
ACCESSION NUMBER: 1968:105310 HCAPLUS

DOCUMENT NUMBER: 68:105310

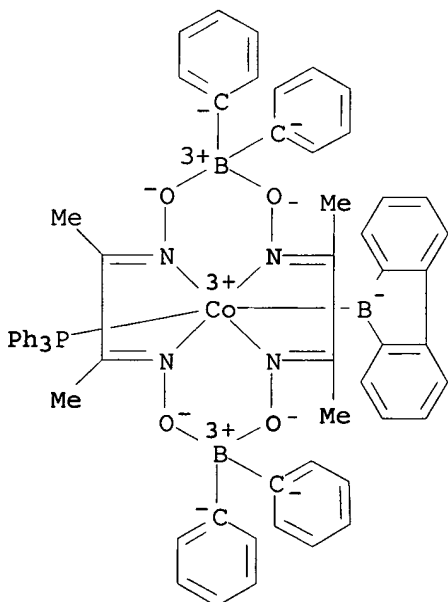
TITLE: Metal-boron compounds. VI.  
 Bis(dimethylglyoximate)cobalt(III) compounds  
 with cobalt-boron bonds

AUTHOR(S): Schmid, Guenter; Powell, Paul; Noeth, Heinrich

CORPORATE SOURCE: Univ. Marburg/Lahn, Marburg/Lahn, Fed. Rep. Ger.  
 SOURCE: Chemische Berichte (1968), 101(4), 1205-14  
 CODEN: CHBEAM; ISSN: 0009-2940  
 DOCUMENT TYPE: Journal  
 LANGUAGE: German  
 GI For diagram(s), see printed CA Issue.  
 AB The preps. of the complexes I (R = Ph, Bu) from bis(dimethylglyoximato)cobalt(III) chloride base adducts are described. These complexes react with metal carbonyl complexes to form  $\text{Cl}_2\text{BMo}(\text{CO})_4(\text{PPh}_3)$ ,  $\text{Cl}_2\text{BNi}(\text{NO})(\text{PPh}_3)_2$ ,  $(\text{BF})\text{Mn}(\text{CO})_4(\text{PPh}_3)$  and  $\text{Cl}_2\text{BFe}(\text{CO})_2(\text{C}_5\text{H}_5)$ , where  $\text{C}_5\text{H}_5$  is cyclopentadienyl.  
 IT 244-33-7DP, 5H-Dibenzoborole, cobalt complexes  
 18079-00-0P  
 (preparation of)  
 RN 244-33-7 HCAPLUS  
 CN 5H-Dibenzoborole (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 18079-00-0 HCAPLUS  
 CN Cobalt, [[bis[μ-[2,3-butanedione dioximato(2-)]]]tetraphenyldiborato(2-)]-5H-dibenzoborol-5-yl(triphenylphosphine)-, trans- (8CI) (CA INDEX NAME)



CC 29 (Organometallic and Organometalloidal Compounds)  
 IT 244-33-7DP, 5H-Dibenzoborole, cobalt complexes  
 431-03-8DP, 2,3-Butanedione, dioxime, cobalt complexes  
 603-32-7DP, Arsine, triphenyl-, cobalt complexes 603-35-0DP,

Phosphine, triphenyl-, cobalt complexes 2386-98-3DP, Borane,  
 bis(dimethylamino)-, cobalt complexes 10325-39-0DP, Borane,  
 dichloro-, complexes with cobalt and iron and nickel 12306-68-2P  
 13383-33-0DP, Borane, diphenyl-, cobalt complexes 14126-40-0P  
 18078-93-8P 18078-99-4P **18079-00-0P** 18079-01-1P  
 18079-02-2P 18115-35-0P 18115-36-1P 18115-37-2P  
 18115-38-3P 18115-39-4P 18115-40-7P 18115-41-8P  
 18115-42-9P 18115-43-0P 18115-45-2P 18115-46-3P  
 18115-47-4P  
 (preparation of)

L12 ANSWER 63 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1967:496377 HCAPLUS

DOCUMENT NUMBER: 67:96377

TITLE: Metal-boron compounds. V. Diarylboron group  
 as a ligand in phosphine cobalt(II) compounds  
 AUTHOR(S): Schmid, Guenter; Noeth, Heinrich  
 CORPORATE SOURCE: Univ. Marburg/Lahn, Marburg/Lahn, Fed. Rep.  
 Ger.

SOURCE: Chemische Berichte (1967), 100(9), 2899-907  
 CODEN: CHBEAM; ISSN: 0009-2940

DOCUMENT TYPE: Journal

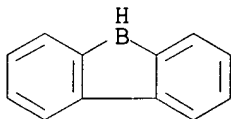
LANGUAGE: German

AB cf. CA 66: 28819k. R'<sub>2</sub>CoH [where R' = (Ph<sub>2</sub>PCH<sub>2</sub>)<sub>2</sub> or  
 o-C<sub>6</sub>H<sub>4</sub>(PMe<sub>2</sub>)<sub>2</sub>] were treated with R<sub>2</sub>BCl (where R<sub>2</sub>B = Ph<sub>2</sub>B or  
 9-borafuorenyl) to form R'<sub>2</sub>CoCl<sub>2</sub> and trans-R'<sub>2</sub>CO(BR<sub>2</sub>)<sub>2</sub> and H<sub>2</sub>.  
 The R<sub>2</sub>B group carried a neg. charge, and could be exchanged by  
 ligand exchange reaction, as shown by the formation of compds.  
 with Fe-B, Mn-B, Ni-B, Au-B bonding.

IT **244-33-7DP**, 5H-Dibenzoborole, cobalt complexes  
**18154-62-6P**  
 (preparation of)

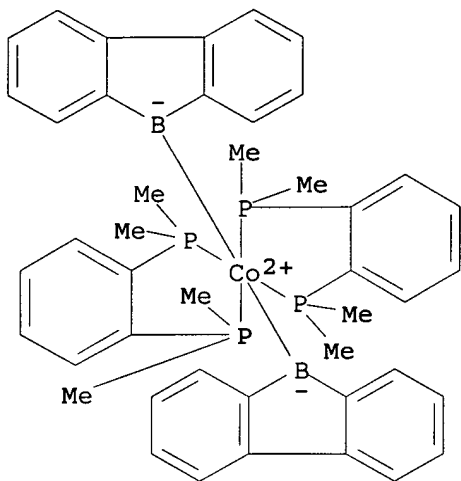
RN 244-33-7 HCAPLUS

CN 5H-Dibenzoborole (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 18154-62-6 HCAPLUS

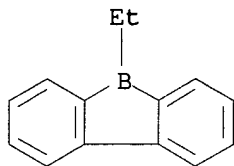
CN Cobalt, bis(5H-dibenzoborol-5-yl)bis[o-  
 phenylenebis(dimethylphosphine)]-, trans- (8CI) (CA INDEX NAME)



CC 78 (Inorganic Chemicals and Reactions)  
 IT 244-33-7DP, 5H-Dibenzoborole, cobalt complexes  
 603-35-0DP, Phosphine, triphenyl-, gold complex 1663-45-2DP,  
 Phosphine, ethylenebis[diphenyl-, complexes with cobalt and nickel  
 4426-21-5P 5123-17-1P 7237-07-2DP, Phosphine,  
 o-phenylenebis(dimethyl-, cobalt complexes 12277-78-0P  
 13383-33-0DP, Borane, diphenyl-, transition metal complexes  
 15555-90-5P 16985-95-8P 16985-96-9P 16997-64-1P  
 17000-09-8P 18154-61-5P 18154-62-6P 18194-97-3P  
 18194-98-4P 18347-83-6P 18556-96-2P 19293-29-9P  
 19293-30-2P  
 (preparation of)

L12 ANSWER 64 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1967:115757 HCAPLUS  
 DOCUMENT NUMBER: 66:115757  
 TITLE: Boron compounds. XI. Pyrolysis products of  
 aralkyl and arylboranes  
 AUTHOR(S): Koester, Roland; Benedikt, Gerald; Fenzl,  
 Wolfgang; Reinert, Klaus  
 CORPORATE SOURCE: Max-Planck-Inst. Kohlenforschung,  
 Muelheim-Ruhr, Fed. Rep. Ger.  
 SOURCE: Justus Liebig's Annalen der Chemie (1967), 702,  
 197-23  
 CODEN: JLACBF; ISSN: 0075-4617  
 DOCUMENT TYPE: Journal  
 LANGUAGE: German  
 GI For diagram(s), see printed CA Issue.  
 AB cf. CA 64, 6688h. Aralkylboranes and arylcycloalkylboranes are  
 converted on heating into B-containing heterocyclic compds.  
 (1-boraindane, 1-boratetralins, tricyclic boranes) with  
 B-Caryl-bond. In contrast to the pyrolysis of trialkylboranes,  
 not only does the reaction of a BH group with a sterically  
 favorable Caryl-H formed by dehydroboration (cleavage of alkene)  
 play a role, but also does the direct cleavage of aralkane,  
 arylcycloalkane, or alkane. The ring closure of  
 2-biphenylboranes to 9-borafluorenes (I) is also described.  
 IT 14855-16-4P  
 (preparation and v and uv spectra of)  
 RN 14855-16-4 HCAPLUS

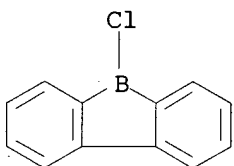
CN 5H-Dibenzoborole, 5-ethyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



IT 13059-59-1P 14010-92-5P 14010-93-6P  
14010-95-8P 14265-95-3P 14265-96-4P  
14855-11-9P, Benzo[b]cyclopenta[d]borole,  
1,2,3,3a,4,8b-hexahydro-4-propyl- 14855-12-0P  
(preparation of)

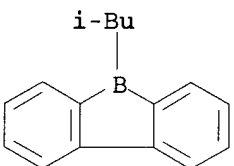
RN 13059-59-1 HCAPLUS

CN 5H-Dibenzoborole, 5-chloro- (7CI, 8CI, 9CI) (CA INDEX NAME)



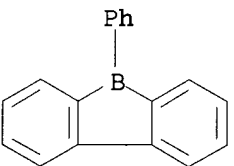
RN 14010-92-5 HCAPLUS

CN 5H-Dibenzoborole, 5-isobutyl- (7CI, 8CI) (CA INDEX NAME)



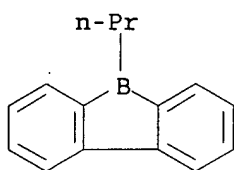
RN 14010-93-6 HCAPLUS

CN 5H-Dibenzoborole, 5-phenyl- (7CI, 8CI, 9CI) (CA INDEX NAME)

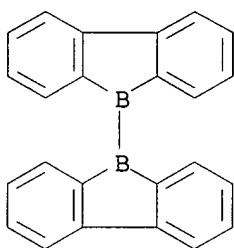


RN 14010-95-8 HCAPLUS

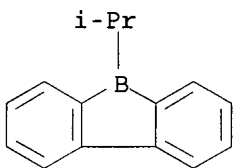
CN 5H-Dibenzoborole, 5-propyl- (7CI, 8CI) (CA INDEX NAME)



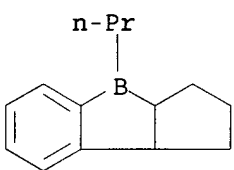
RN 14265-95-3 HCAPLUS  
CN 5,5'-Bi-5H-dibenzoborole (8CI, 9CI) (CA INDEX NAME)



RN 14265-96-4 HCAPLUS  
CN 5H-Dibenzoborole, 5-isopropyl- (7CI, 8CI) (CA INDEX NAME)

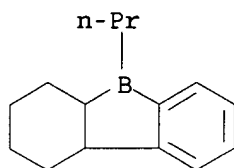


RN 14855-11-9 HCAPLUS  
CN Benzo[b]cyclopenta[d]borole, 1,2,3,3a,4,8b-hexahydro-4-propyl- (8CI) (CA INDEX NAME)



RN 14855-12-0 HCAPLUS  
CN 5H-Dibenzoborole, 1,2,3,4,4a,9b-hexahydro-5-propyl- (8CI) (CA INDEX NAME)





CC 29 (Organometallic and Organometalloidal Compounds)

IT 14855-16-4P

(preparation and v and uv spectra of)

IT 13059-59-1P 13213-09-7P 14010-82-3P 14010-83-4P

14010-84-5P 14010-85-6P 14010-86-7P 14010-87-8P

14010-88-9P 14010-89-0P 14010-90-3P 14010-91-4P

14010-92-5P 14010-93-6P 14010-95-8P

14108-05-5P 14108-06-6P 14108-07-7P 14108-08-8P

14108-09-9P 14108-10-2P 14265-95-3P

14265-96-4P 14855-08-4P 14855-09-5P 14855-10-8P

14855-11-9P, Benzo[b]cyclopenta[d]borole,

1,2,3,3a,4,8b-hexahydro-4-propyl- 14855-12-0P

14855-13-1P 14855-14-2P, Dibenzo[b,e]borin, 1,2,3,4,4a,5,10,10a-

octahydro-5-propyl- 14855-15-3P, Naphtho[1,8-bc]borole,

1-ethyl-1,2-dihydro-

(preparation of)

L12 ANSWER 65 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1966:465472 HCAPLUS

DOCUMENT NUMBER: 65:65472

ORIGINAL REFERENCE NO.: 65:12186a-h,12187a-f

TITLE: Derivatives of methylenedioxybenzene. XX.

3,4:3',4'-Bis- [methylenedioxy]biphenyl

AUTHOR(S): Dallacker, Franz; Adolphen, Gerd

CORPORATE SOURCE: Tech. Hochsch., Aachen, Germany

SOURCE: Justus Liebigs Annalen der Chemie (1966), 694, 110-16

CODEN: JLACBF; ISSN: 0075-4617

DOCUMENT TYPE: Journal

LANGUAGE: German

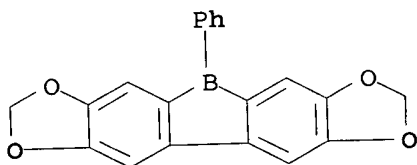
GI For diagram(s), see printed CA Issue.

AB cf. CA 65, 12153g. The preparation and substitution reactions of the title compound (I) are described. The ir spectra of the compds. were in accord with the structures reported. Cu bronze (120 g.) and 66 g. 3,4-CH<sub>2</sub>O<sub>2</sub>C<sub>6</sub>H<sub>3</sub>I (II) heated 2-3 hrs. at 200° in an oil bath, the mixture extracted (Soxhlet) 5 hrs. with Me<sub>2</sub>CO, the extract concentrated, the residue distilled in vacuo, and the fraction b<sub>4</sub> 187-92°, crystallized from C<sub>6</sub>H<sub>6</sub> gave 6.8 g. I, m. 145-6°. (I, R, =, R<sub>1</sub>, =, H); (IV, R, =, R<sub>1</sub>, =, NO<sub>2</sub>); (V, R, =, Br, R<sub>1</sub>, =, H); (VI, R, =, CO<sub>2</sub>H, R<sub>1</sub>, =, H); (VIII, R, =, CO<sub>2</sub>Me, R<sub>1</sub>, =, H); (IX, R, =, NO<sub>2</sub>, R<sub>1</sub>, =, H); (X, R, Br, R<sub>1</sub>, =, NO<sub>2</sub>); (XI, R, =, R<sub>1</sub>, =, Br); (XII, R, =, R<sub>1</sub>, =, I); (XIII, R, =, R<sub>1</sub>, =, CO<sub>2</sub>H); (XIV, R, =, R<sub>1</sub>, =, CH<sub>2</sub>Cl); (XV, R, =, R<sub>1</sub>, =, CH<sub>2</sub>OMe); (XVII, R, =, R<sub>1</sub>, =, NH<sub>2</sub>); To 30 g. II and 210 cc. Ac<sub>2</sub>O was added portionwise 45 g. Cu(NO<sub>3</sub>)<sub>2</sub>·6H<sub>2</sub>O with stirring at below 65° and the mixture stirred 1 hr. at room temperature and poured onto ice to give 29.3 g. 6-NO<sub>2</sub> derivative (III) of II, m. 109-10° (EtOH). II (20 g.) added dropwise to 150 cc. HNO<sub>3</sub> (d. 1.41) with stirring and the mixture stirred 30 min. and poured onto ice gave 22.4 g. III. III (30 g.) in 150 cc. PhNO<sub>2</sub> treated portionwise with 20 g. Cu bronze with stirring at 160° in such a way that only a slight

temperature rise occurred, the mixture stirred 30 min. and cooled, the precipitate filtered off and washed with Me<sub>2</sub>CO, and the combined filtrate and washings concentrated in vacuo gave 11.2 g. IV, m. 225-6° (EtOH). A similar larger scale reaction of 120 g. III in 360 cc. PhNO<sub>2</sub> with 100 g. Cu bronze gave 64 g. IV. To 10 g. I in 150 cc. AcOH was added dropwise 2.5 cc. Br in 7 cc. AcOH at 60-70° and the solution stirred 30 min. and poured onto ice to give 9.5 g. V, m. 106° (EtOH). To BuLi solution (from 0.5 g. Li, 7.5 g. BuBr, and 150 cc. absolute Et<sub>2</sub>O) was added 5 g. V at -15° under anhydrous conditions (N atmospheric), after 20 min. solid CO<sub>2</sub> added, the solution decomposed with H<sub>2</sub>O, the layers separated, the Et<sub>2</sub>O layer washed with H<sub>2</sub>O, the combined aqueous solns. acidified with dilute HCl, and the precipitate filtered off and purified by repptn. from 2N NaOH with 2N HCl to give 2.5 g. VI, decomposed at 242-5°; evaporation of the Et<sub>2</sub>O phase gave 1.4 g. VII. VI with Et<sub>2</sub>O-CH<sub>2</sub>N<sub>2</sub> gave VIII, m. 110-11° (EtOH). To 10 g. I in 500 cc. AcOH was added dropwise a mixture of 25 cc. 65% HNO<sub>3</sub> and 25 cc. AcOH at 10° with stirring, the mixture treated with an addnl. 50 cc. 65% HNO<sub>3</sub>, and the precipitate filtered off to give 4.3 g. IX, m. 164-5° (EtOH); the filtrate poured into iced H<sub>2</sub>O and the precipitate recrystd. from EtOH gave 3.7 g. IV. V (2 g.) in 150 cc. AcOH added dropwise during 30 min. to 50 cc. AcOH + 50 cc. 65% HNO<sub>3</sub> with stirring and the mixture stirred 30 min. and poured onto ice gave 1.2 g. X, m. 168-9° (EtOH). To 40 g. I in 250 cc. AcOH was added dropwise during 45 min. 20 cc. Br at 60-70° and after 1 hr. the solution poured onto ice to give 57.5 g. XI, m. 153-4° (EtOH). XI (4 g.) in 200 cc. absolute Et<sub>2</sub>O treated with 1.3 g. BuLi in 45 cc. Et<sub>2</sub>O with stirring under anhydrous conditions (N atmospheric), the solution kept 1 hr. at 0°, treated dropwise with 7.6 g. iodine in 50 cc. Et<sub>2</sub>O, let stand 1 hr., and decomposed with ice, and the Et<sub>2</sub>O layer separated, washed with aqueous NaHSO<sub>3</sub> and H<sub>2</sub>O, dried, and evaporated gave 0.8 g. XII, m. 196-7° (EtOH). To BuLi solution (from 1 g. Li, 15 g. BuBr, and 150 cc. Et<sub>2</sub>O) was added during 45 min. 8 g. XI in 500 cc. Et<sub>2</sub>O under anhydrous conditions (N atmospheric), after 1 hr. solid CO<sub>2</sub> added, the solution decomposed with H<sub>2</sub>O, and the aqueous layer separated and acidified with dilute HCl. to give 1.4 g. XIII, m. 293-4° (EtOH) [di-Me ester (via Et<sub>2</sub>O-CH<sub>2</sub>N<sub>2</sub>) m. 158° (EtOH)]; from the Et<sub>2</sub>O phase was isolated 3.7 g. VII, m. 279° (AcOH). Into a mixture of 40 g. I, 360 cc. AcOH, 500 cc. 12N HCl, and 40 g. paraformaldehyde was introduced a vigorous stream of HCl 2 hrs. at 90-100°, the mixture cooled and poured onto ice, and the solid filtered off, washed neutral with H<sub>2</sub>O, and recrystd. repeatedly from cyclohexane to give 17.3 g. XIV, not anal. pure, decomposed at 248-51°. XIV (2 g.) refluxed 4-5 hrs. with a solution of 0.5 g. Na in 20 cc. MeOH, the solution poured into H<sub>2</sub>O, the precipitate dissolved in boiling EtOH, and the solution treated with C, filtered, and diluted with H<sub>2</sub>O gave 1.9 g. XV, m. 112°. A mixture of 2 g. XIV, 30 cc. H<sub>2</sub>O, 5 g. KOH, and 5 cc. Me<sub>2</sub>CO refluxed 16 hrs. and cooled, the precipitate filtered off, washed with H<sub>2</sub>O, and dissolved in hot EtOH, and the solution diluted with H<sub>2</sub>O gave 1.7 g. XVI, decomposed at 214-16°. A mixture of 12.1 g. I, 12 g. paraformaldehyde, 120 cc. 65% HBr, and 500 cc. AcOH stirred under ice cooling, heated gradually to 40° and finally 1 hr. at 45°, and poured onto ice gave 13.1 g. XVI. IV (25 g.) in 21. EtOH hydrogenated over Raney Ni 7 hrs. at 70°, the solution filtered and evaporated, the residue extracted repeatedly with dilute HCl, and the combined exts. made alkaline gave 2 g. XVII. IV (30 g.) in 11. AcOH heated to boiling with stirring, Raney Ni added, H introduced 10 hrs. at the b.p., the solution cooled, filtered, and diluted with H<sub>2</sub>O, and the precipitate purified as

above gave 20 g. XVII, decomposed at 214-15°. XVII (2.7 g.) diazotized and the diazonium solution added to excess aqueous K2S with stirring and ice cooling, heated 45 min. at 100°, and cooled gave 2.2 g. XVIII, decomposed at 270-5° (EtOH). A mixture of 10 g. 6-bromopiperonylic acid (CA 55, 3593e), 10 g. NaOPh, 30 g. PhOH, and 2 g. Cu bronze stirred 4 hrs. at 100°, the solidified mass steam distilled (to remove PhOH) and dissolved in Me2CO, and the solution filtered and evaporated gave 6.5 g. 2,4,5-HO2C(CH2O2)C6H2OPh (XIX), m. 172° Me ester (via Et2O-CH2N2) m. 83-4° (EtOH). XIX (2 g.) dissolved in 50 cc. AcCl by gentle heating and the solution cooled, treated with 1 cc. concentrated H2SO4, and let stand 1 hr. at room temperature gave 1.55 g. XX, m. 221-2° (EtOH). To BuLi solution (from 0.6 g. Li, 6 g. BuBr, and 100 cc. Et2O) was added a suspension of 8 g. XI in 100 cc. Et2O under anhydrous conditions (N atmospheric), followed after 15 min. by 4.8 g. PhB(Obu)2 in 50 cc. Et2O + 100 cc. absolute C6H6, the solution distilled through a Vigreux column until the boiling range reached 55-60°, heated 30 min. at 55-60°, and decomposed with H2O, and the aqueous layer separated and acidified to give 1.9 g. XXI, m. 115-17° (EtOH). XI (8 g.) in Et2O-C5H6 converted similarly to the di-Li derivative with BuLi solution (from 0.6 g. Li and 6 g. BuBr in Et2O), the solution treated with 2.55 g. Me2SiCl2, distilled as above to a b.p. of 60°, heated 3 hrs. at 60°, and decomposed with H2O, the organic phase separated and evaporated, and the oily residue triturated with Me2CO gave 1.8 g. XXII, m. 232-3° (EtOH). (XXI, X, =, BPh); (XXII, X, =, SiMe2); (XXIV, X, =, PPh); (XXV, X, =, AsPh); (XXVI, X, =, SbPh); (XXVII, X, =, PbPh2). Similar treatment of 1.7 g. BuLi, 4 g. XI, and 2.6 g. Ph2SiCl2 in Et2O-C6H6 gave after heating 1.5 hrs. at 60° followed by hydrolysis an insol. residue, which filtered off and digested with hot Me2CO gave 1.4 g. XXIII, decomposed at 340°. From 1.7 g. BuLi, 4 g. XI, and 1.8 g. PhPCl2 in Et2O-C6H6 was prepared like XXII 1.6 g. XXIV, m. 204-5° (EtOH). From 1.7 g. BuLi, 4 g. XI, and 2.3 g. PhAsCl2 in Et2O-C6H6 was similarly prepared 2 g. XXV, m. 231-2° (EtOH). From 0.64 g. BuLi, 2 g. XI, and 2.3 g. PhSbCl2 in Et2O-C6H6 was similarly prepared 1 g. XXVI, m. 242-4° (EtOH). From 1.3 g. BuLi, 4 g. XI, and 4.3 g. Ph2PbCl2 in Et2O-C6H6 was similarly prepared 2.9 g. XXVII, decomposed at 301-2° (C6H6).

IT 7235-54-3, 5H-Borolo[2,3-f:4,5-f']bis[1,3]benzodioxole,  
5-phenyl-  
(preparation of)  
RN 7235-54-3 HCAPLUS  
CN 5H-Borolo[2,3-f:4,5-f']bis[1,3]benzodioxole, 5-phenyl- (7CI, 8CI)  
(CA INDEX NAME)



CC 38 (Heterocyclic Compounds (More Than One Hetero Atom))  
IT 4791-89-3, Biphenyl, 3,4:3',4'-bis(methylenedioxy) - 4791-90-6,  
Biphenyl, 2,2'-dibromo-4,5:4',5'-bis(methylenedioxy) - 6707-94-4,  
Diphenic acid, 4,5:4',5'-bis(methylenedioxy) - 6720-25-8,  
10H-1,3-Dioxolo[4,5-b]xanthen-10-one 7106-74-3, Benzene,

1-iodo-4,5-(methylenedioxy)-2-nitro- 7106-75-4, Biphenyl,  
 4,5:4',5'-bis(methylenedioxy)-2,2'-dinitro- 7106-76-5, Biphenyl,  
 2-bromo-3',4':4,5-bis(methylenedioxy)- 7106-77-6,  
 10H-Fluoreno[2,3-d:6,7-d']bis[1,3]dioxol-10-one 7106-78-7,  
 2-Biphenylcarboxylic acid, 3',4':4,5-bis(methylenedioxy)-, methyl  
 ester 7106-79-8, Biphenyl, 3',4':4,5-bis(methylenedioxy)-2-nitro-  
 7106-80-1, Biphenyl, 2-bromo-4,5:4',5'-bis(methylenedioxy)-2'-  
 nitro- 7106-82-3, Biphenyl, 2,2'-diiodo-4,5:4',5'-  
 bis(methylenedioxy)- 7106-83-4, Biphenyl, 2,2'-bis(chloromethyl)-  
 4,5:4',5'-bis(methylenedioxy)- 7106-84-5, Biphenyl,  
 2,2'-bis(methoxymethyl)-4,5:4',5'-bis(methylenedioxy)-  
 7106-85-6, Oxepino[3,4-f:5,6-f']bis[1,3]benzodioxole, 5,7-dihydro-  
 7106-86-7, 2,2'-Biphenyldiamine, 4,5:4',5'-bis(methylenedioxy)-  
 7106-87-8, 5H-Bis[1,3]dioxolo[4,5-b:4',5'-h]carbazole 7106-88-9,  
 Benzoic acid, 4,5-(methylenedioxy)-2-phenoxy- 7106-89-0, Benzoic  
 acid, 4,5-(methylenedioxy)-2-phenoxy-, methyl ester 7106-91-4,  
 5H-Silolo[2,3-f:4,5-f']bis[1,3]benzodioxole, 5,5-dimethyl-  
 7106-92-5, 5H-Silolo[2,3-f:4,5-f']bis[1,3]benzodioxole,  
 5,5-diphenyl- 7106-93-6, 5H-Phospholo[2,3-f:4,5-  
 f']bis[1,3]benzodioxole, 5-phenyl- 7106-95-8,  
 5H-Plumbolo[2,3-f:4,5-f']bis[1,3]benzodioxole, 5,5-diphenyl-  
 7159-30-0, 2-Biphenylcarboxylic acid, 3',4':4,5-  
 bis(methylenedioxy)- 7235-54-3, 5H-Borolo[2,3-f:4,5-  
 f']bis[1,3]benzodioxole, 5-phenyl- 15039-98-2,  
 5H-Stibolo[2,3-f:4,5-f']bis[1,3]benzodioxole, 5-phenyl-  
 (preparation of)

L12 ANSWER 66 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1966:443972 HCAPLUS

DOCUMENT NUMBER: 65:43972

ORIGINAL REFERENCE NO.: 65:8204c-d

TITLE: The electronic structure of the diphenylboron  
 cation and the 9-borafluorenes

AUTHOR(S): Armstrong, D. R.; Perkins, P. G.

CORPORATE SOURCE: Univ. Newcastle-upon-Tyne, UK

SOURCE: Journal of the Chemical Society [Section] A:  
 Inorganic, Physical, Theoretical (1966), (8),  
 1026-31

CODEN: JCSIAP; ISSN: 0022-4944

DOCUMENT TYPE: Journal

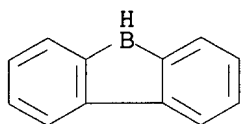
LANGUAGE: English

AB The electronic structures and absorption spectra of the  
 diphenylboron and the 9-borafluorene cations, neutral  
 borafluorene, and  $\beta$ -chloro-9-bora-fluorene are calculated by the  
 Pariser-Parr-Pople technique. A comparison of the calculated with the  
 observed energies indicates that in solution the  $\text{Ph}_2\text{B}^+$  ion is  
 coordinated while the 9-borafluorene cation is not. Similar  
 considerations infer the highly polar nature of the B-R bond in  
 the neutral 9-borafluorenes.

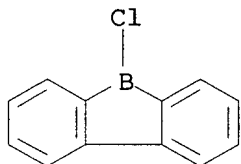
IT 244-33-7, 5H-Dibenzoborole 13059-59-1,  
 5H-Dibenzoborole, 5-chloro-  
 (cation from, electronic structure and spectrum of)

RN 244-33-7 HCAPLUS

CN 5H-Dibenzoborole (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 13059-59-1 HCAPLUS  
 CN 5H-Dibenzoborole, 5-chloro- (7CI, 8CI, 9CI) (CA INDEX NAME)

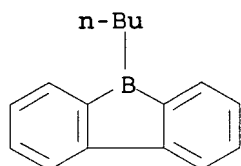


CC 10 (Spectra and Some Other Optical Properties)  
 IT 244-33-7, 5H-Dibenzoborole 13059-59-1,  
 5H-Dibenzoborole, 5-chloro- 13383-33-0, Borane, diphenyl-  
 (cation from, electronic structure and spectrum of)

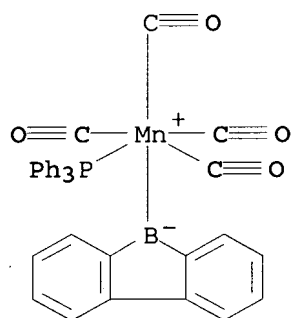
L12 ANSWER 67 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1966:427003 HCAPLUS  
 DOCUMENT NUMBER: 65:27003  
 ORIGINAL REFERENCE NO.: 65:4985g-h,4986a-b  
 TITLE: Metal-boron compounds. III.  
 Triphenylphosphinetetracarbonylmanganese-boron  
 compounds  
 AUTHOR(S): Noeth, H.; Schmid, G.  
 CORPORATE SOURCE: Univ. Munich, Germany  
 SOURCE: Zeitschrift fuer Anorganische und Allgemeine  
 Chemie (1966), 345(1-2), 69-78  
 CODEN: ZAACAB; ISSN: 0044-2313  
 DOCUMENT TYPE: Journal  
 LANGUAGE: German  
 GI For diagram(s), see printed CA Issue.  
 AB cf. CA 64, 6682c. The reaction of  $\text{Ph}_2\text{BCl}$  and  $\text{NaMn}(\text{CO})_4\text{PPh}_3$  (I) in  
 $\text{Et}_2\text{O}$  in the presence of a small amount of Na amalgam gave a 60-70%  
 yield of  $\text{Ph}_2\text{BMn}(\text{CO})_4\text{PPh}_3$ , m.  $120^\circ$ , which was recovered by  
 filtration, removal of solvent, and recrystn. from petr. ether.  
 $\text{Bu}_2\text{BMn}(\text{CO})_4\text{PPh}_3$  and a derivative of 9-borafluorene (II), m.  
 $>140^\circ$ , were prepared in similar fashion in yields of 33% and  
 52%, resp.  $\text{Et}_2\text{PB}(\text{NEt}_2)_2\text{Cl}$  reacted with  $\text{Ni}(\text{CO})_4$  at  $0^\circ$  to form  
 $(\text{CO})_3\text{NiP}(\text{Et})_2\text{B}(\text{NEt}_2)_2\text{Cl}$  (III). III is a liquid which, in turn,  
 reacted with I in  $\text{Et}_2\text{O}$  to give a 62% yield of  
 $(\text{CO})_3\text{NiP}(\text{Et})_2\text{B}(\text{NEt}_2)\text{Mn}(\text{CO})_4\text{PPh}_3$ .  $\text{Cl}_2\text{BMn}(\text{CO})_4\text{PPh}_3$  (IV) was prepared  
 in 60% yield by a reaction between  $\text{BCl}_3$  and I in  $\text{Et}_2\text{O}$ . Extended  
 reaction time causes IV to combine with more I to give a 66% yield  
 of  $\text{ClB}[\text{Mn}(\text{CO})_4\text{PPh}_3]_2$ , m.  $110^\circ$  (decomposition). A similar  
 reaction between I and  $\text{Et}_2\text{NBCl}_2$  gave an 85% yield of  
 $\text{Et}_2\text{NB}[\text{Mn}(\text{CO})_4\text{PPh}_3]_2$ , m.  $120^\circ$  (decomposition). Reaction of IV  
 with NaOMe in  $\text{Et}_2\text{O}$  gave a 76% yield of  $(\text{MeO})_2\text{BMn}(\text{CO})_4\text{PPh}_3$ .  
 Reaction of IV with  $\text{Me}_2\text{NH}$  in  $\text{Et}_2\text{O}$  gave  $\text{Me}_2\text{N}(\text{Cl})\text{BMn}(\text{CO})_4\text{PPh}_3$ , m.  
 $135-40^\circ$ . A similar reaction with o-phenylenediamine gave a  
 77% yield of V, m.  $120-25^\circ$ . All of the B-Mn compds. are  
 very sensitive to  $\text{H}_2\text{O}$  and O and all manipulations were carried out

under dry N. Br<sub>2</sub> or Ag<sup>+</sup> will cleave the B-Mn bound. The compds. are all monomers in C<sub>6</sub>H<sub>6</sub>. Some ir and N.M.R. data are presented and discussed in terms of B-Mn  $\pi$ -bonding.

IT 7760-71-6, 5H-Dibenzoborole, 5-butyl- 15696-95-4  
, 5H-Dibenzoborole, manganese complex  
(preparation of)  
RN 7760-71-6 HCAPLUS  
CN 5H-Dibenzoborole, 5-butyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



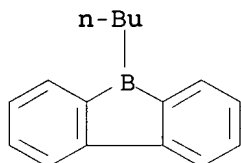
RN 15696-95-4 HCAPLUS  
CN Manganese, tetracarbonyl-5H-dibenzoborol-5-yl(triphenylphosphine)-  
(9CI) (CA INDEX NAME)



CC 14 (Inorganic Chemicals and Reactions)  
IT 272-92-4, 2H-1,3,2-Benzodiazaborole, manganese complex  
2052-07-5, Biphenyl, 2-bromo- 4542-61-4, Borane, dimethoxy-,  
manganese complex 7760-71-6, 5H-Dibenzoborole, 5-butyl-  
15660-49-8, Manganese, tetracarbonyl(dibutylboryl)(triphenylphosphine)-  
15667-02-4, Manganese, (dichloroboryl)tetracarbonyl(triphenylphosphine)-  
15679-57-9, Manganese, tetracarbonyl(diphenylboryl)(triphenylphosphine)-  
15679-58-0, Manganese, (chloroborylene)bis[tetracarbonyl(triphenylphosphine)]-  
15679-59-1, Manganese, [(diethylamino)borylene]bis[tetracarbonyl(triphenylphosphine)]-  
15696-95-4, 5H-Dibenzoborole, manganese complex 15710-24-4, Manganese, (dimethoxyboryl)tetracarbonyl(triphenylphosphine)-  
15710-33-5, Manganese, [chloro(dimethylamino)boryl]tetracarbonyl(triphenylphosphine)-  
15752-06-4, Manganese, (2H-1,3,2-benzodiazaborolato)tetracarbonyl(triphenylphosphine)-  
15818-83-4, Manganese, [ $\mu$ -(diethylamino)(diethylphosphino)boryl](tricarbonylnickel)tetracarbonyl(triphenylphosphine)-  
18494-92-3, Borane, (diethylamino)-, manganese complex (preparation of)

L12 ANSWER 68 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1966:427002 HCAPLUS  
DOCUMENT NUMBER: 65:27002

ORIGINAL REFERENCE NO.: 65:4985f-g  
 TITLE: Dibromotetrakis(thiourea)manganese(II) complex  
 AUTHOR(S): Dash, K. C.; Rao, D. V. Ramana  
 CORPORATE SOURCE: Regional Eng. Coll., Rourkela, India  
 SOURCE: Current Science (1966), 35(8), 203-4  
 CODEN: CUSCAM; ISSN: 0011-3891  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB MnBr<sub>2</sub> and thiourea (1:4) were refluxed in EtOH for 2 hrs. The solution was concentrated and cooled to obtain white crystalline Mn[SC(NH<sub>2</sub>)<sub>2</sub>]Br<sub>2</sub>, m. 179°. It is a nonelectrolyte in Me<sub>2</sub>CO and has 5 unpaired electrons ( $\mu = 6.03$  Bohr magnetons). Attempts to prepare the analogous iodide and thiocyanate complexes failed.  
 IT 7760-71-6, 5H-Dibenzoborole, 5-butyl- (preparation of)  
 RN 7760-71-6 HCAPLUS  
 CN 5H-Dibenzoborole, 5-butyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



CC 14 (Inorganic Chemicals and Reactions)  
 IT 603-35-0, Phosphine, triphenyl- 2052-07-5, Biphenyl, 2-bromo-7760-71-6, 5H-Dibenzoborole, 5-butyl- 15660-49-8, Borane, dibutyl-, manganese complex 15679-57-9, Manganese, tetracarbonyl(diphenylboryl)(triphenylphosphine)- 16037-98-2, Manganese, dibromotetrakis(thiourea)- (preparation of)

L12 ANSWER 69 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

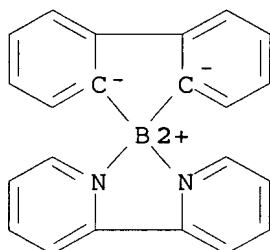
ACCESSION NUMBER: 1966:51908 HCAPLUS  
 DOCUMENT NUMBER: 64:51908  
 ORIGINAL REFERENCE NO.: 64:9679d-e  
 TITLE: Some stable monoboron free radicals.  
 2,2'-Bipyridine stabilization of unusual oxidation states of boron  
 AUTHOR(S): Kuck, Mark A.; Urry, Grant  
 CORPORATE SOURCE: Purdue Univ., Lafayette, IN  
 SOURCE: Journal of the American Chemical Society (1966), 88(3), 426-31  
 CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB Treatment of various chloroboranes with lithium 2,2'-bipyridine, dilithium 2,2'-bipyridine, or with mixts. of these two reagents results in the formation of a series of neutral-monoboron compds. in which boron is stabilized in unusual oxidation states by chelation with 2,2'-bipyridine. Dimethylaminoboron 2,2'-bipyridine is an even-electron diamagnetic species while 2,2'-biphenyleneboron 2,2'-bipyridine, bis(dimethylamino)boron 2,2'-bipyridine, and boron bis(2,2'-bipyridine) all are odd-electron paramagnetic species. The characterizations of these compds. are discussed along with some of their chemical properties and E.S.R. spectra of

the paramagnetic species.

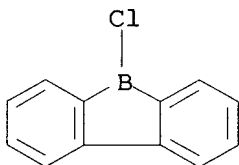
IT 15225-19-1, Boron, (2,2'-biphenylene) (2,2'-bipyridine) -  
(preparation of)  
RN 15225-19-1 HCAPLUS  
CN Boron, [1,1'-biphenyl]-2,2'-diyl(2,2'-bipyridine-N,N')-, (T-4) -  
(9CI) (CA INDEX NAME)



CC 37 (Heterocyclic Compounds (One Hetero Atom))  
IT 536-75-4, Pyridine, 4-ethyl- 15225-19-1, Boron,  
(2,2'-biphenylene) (2,2'-bipyridine) -  
(preparation of)

L12 ANSWER 70 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1964:16940 HCAPLUS  
DOCUMENT NUMBER: 60:16940  
ORIGINAL REFERENCE NO.: 60:2997e-h  
TITLE: Polynuclear complexes of ethyl(ethoxy)aluminum  
chloride  
AUTHOR(S): Scherer, H.; Seydel, G.  
CORPORATE SOURCE: Farbwerke Hoechst A.-G., Frankfurt, Germany  
SOURCE: Angew. Chem. (1963), 75(18), 846-51  
DOCUMENT TYPE: Journal  
LANGUAGE: Unavailable  
GI For diagram(s), see printed CA Issue.  
AB Infrared, reaction rate, and d. measurements on the system  
EtOH:2Et2AlCl in C7H16 indicate the formation and isomerization of  
Et(EtO)AlCl as follows:  
IT 13059-59-1, 5H-Dibenzoborole, 5-chloro-  
(preparation of)  
RN 13059-59-1 HCAPLUS  
CN 5H-Dibenzoborole, 5-chloro- (7CI, 8CI, 9CI) (CA INDEX NAME)



CC 39 (Organometallic and Organometalloidal Compounds)  
IT 122-56-5, Borane, tributyl- 1107-40-0, Borane, tri-10-pinanyl-,  
isomers 1116-61-6, Borane, tripropyl- 1123-02-0, Borolane,  
1-butyl- 10325-42-5, Borane, diisopropylpropyl- 10325-43-6,  
Borane, isopropyldipropyl- 13059-59-1, 5H-Dibenzoborole,  
5-chloro- 13213-09-7, 1H-1-Benzoborole, 2,3-dihydro-1-phenethyl-  
14010-85-6, 1H-1-Benzoborole, 2,3-dihydro-1-isobutyl-3-methyl-



14010-87-8, 1-Benzoborin, 1,2,3,4-tetrahydro-1-(3-phenylpropyl)-  
 14108-09-9, 1H-1-Benzoborole, 1-butoxy-2,3-dihydro-3-methyl-  
 16664-33-8, 9b-Boraphenalene, dodecahydro- 91636-09-8, Borane,  
 dibutylisobutyl- 92658-67-8, Borepane, 1-ethyl- 92658-68-9,  
 Borinane, 1-ethyl-2-methyl- 92672-98-5, Borolane, 1,2-diethyl-  
 93113-81-6, 1,3,5,7-Tetraborocane, 1,3,5,7-tetramethyl-  
 94981-88-1, Borinane, 1-isoheptyl-3-methyl- 94981-89-2, Borolane,  
 1-isoheptyl-2,4-dimethyl- 98493-50-6, 1H-1-Benzoborole,  
 1-(o-ethylphenyl)-2,3-dihydro- 878191-98-1, Borepane,  
 1-ethyl-3,6-dimethyl-, trans- 878192-04-2, Borepane,  
 1-ethyl-3,6-dimethyl-, cis- 878192-11-1, Borolane,  
 1-ethyl-3,4-dimethyl-, trans- 878192-37-1, Borolane,  
 1-ethyl-3,4-dimethyl-, cis-  
 (preparation of)

L12 ANSWER 71 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1964:16939 HCAPLUS

DOCUMENT NUMBER: 60:16939

ORIGINAL REFERENCE NO.: 60:2997d-e

TITLE: Conversion of boron-organic compounds under heating

AUTHOR(S): Koester, R.; Benedikt, G.; Larbig, W.; Reinert, K.; Rotermund, G.

CORPORATE SOURCE: Max-Planck-Inst., Muelheim/Ruhr, Germany

SOURCE: Angew. Chem. (1963), 75(22), 1079-90

DOCUMENT TYPE: Journal

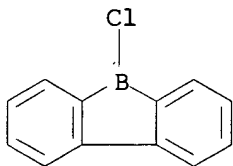
LANGUAGE: Unavailable

AB Trialkylboranes with the same or different radicals on the B-atom are stable to alkyl exchange at room temperature. However, trialkylboranes undergo disproportionation at higher temperature without catalyst. Gas-chromatographic analysis proved that  $\text{Pr}_3\text{B}$  gave 16% iso- $\text{PrBPr}_2$  and 1% (iso- $\text{Pr}$ ) $_2\text{BPr}$  at 160°, and  $\text{Bu}_3\text{B}$  gave 6% iso- $\text{BuBBu}_2$  at 160°. Examples of thermal isomerization and irreversible pyrolytic reactions are reviewed with 60 references.

IT 13059-59-1, 5H-Dibenzoborole, 5-chloro-  
 (preparation of)

RN 13059-59-1 HCAPLUS

CN 5H-Dibenzoborole, 5-chloro- (7CI, 8CI, 9CI) (CA INDEX NAME)



CC 39 (Organometallic and Organometalloidal Compounds)

IT 122-56-5, Borane, tributyl- 1107-40-0, Borane, tris[(6,6-dimethylbicyclo[3.1.1]hept-2-yl)methyl]- 1116-61-6, Borane, tripropyl- 1123-02-0, Borolane, 1-butyl- 10325-42-5, Borane, diisopropylpropyl- 10325-43-6, Borane, isopropylidipropyl- 13059-59-1, 5H-Dibenzoborole, 5-chloro- 13213-09-7, 1H-1-Benzoborole, 2,3-dihydro-1-phenethyl- 14010-85-6, 1H-1-Benzoborole, 2,3-dihydro-1-isobutyl-3-methyl- 14010-87-8, 1-Benzoborin, 1,2,3,4-tetrahydro-1-(3-phenylpropyl)- 14108-09-9, 1H-1-Benzoborole, 1-butoxy-2,3-dihydro-3-methyl- 16664-33-8, 9b-Boraphenalene, dodecahydro- 91636-09-8, Borane, dibutylisobutyl- 92672-98-5, Borolane, 1,2-diethyl-

93113-81-6, 1,3,5,7-Tetraborocane, 1,3,5,7-tetramethyl-  
 94981-88-1, Borinane, 1-isoheptyl-3-methyl- 94981-89-2, Borolane,  
 1-isoheptyl-2,4-dimethyl- 98493-50-6, 1H-1-Benzoborole,  
 1-(o-ethylphenyl)-2,3-dihydro-  
 (preparation of)

L12 ANSWER 72 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1963:441875 HCAPLUS

DOCUMENT NUMBER: 59:41875

ORIGINAL REFERENCE NO.: 59:7574b-h,7575a-e

TITLE: The chemical constituents of Australian  
 Flindersiaspecies. XVII. The structure of  
 ifflaiamine

AUTHOR(S): Bosson, Judith A.; Rasmussen, M.; Ritchie, E.;  
 Robertson, A. V.; Taylor, W. C.

CORPORATE SOURCE: Univ. Sydney

SOURCE: Australian Journal of Chemistry (1963), 16(3),  
 480-90

CODEN: AJCHAS; ISSN: 0004-9425

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

GI For diagram(s), see printed CA Issue.

AB cf. CA 58, 14439e. A new alkaloid ifflaiamine (I) and a new  
 triterpene acid (II) have been isolated from the wood of  
 Flindersia ifflaiana F. Muell. The milled wood (13.3 kg.) was  
 percolated successively with ligroine, ether, acetone and MeOH.  
 Solvent was removed from the light petr. extract, residue dissolved  
 in ether and separated into 5% HCl, 5% NaHCO<sub>3</sub>, 2% Na<sub>2</sub>CO<sub>3</sub>, and 2% NaOH  
 soluble and neutral fraction. The HCl extract on basification and extraction  
 with CHCl<sub>3</sub> gave 1.9 g. crude I. The NaHCO<sub>3</sub>-soluble fraction gave 4.3  
 g. oil from which no crystalline substance could be isolated even after  
 methylation with CH<sub>2</sub>N<sub>2</sub> and chromatography on Al<sub>2</sub>O<sub>3</sub>. The Na<sub>2</sub>CO<sub>3</sub>  
 extract gave 34 g. crude II while no phenolic substance was obtained  
 from NaOH fraction. The neutral fraction gave 135 g. thick brown  
 intractable oil. The ether extract similarly gave 6.9 g. crude I and  
 the acetone extract, 2.1 g. crude I; no crystalline substance was obtained  
 from the MeOH extract. For purification of II, 10.3 g. crude acid was  
 methylated with CH<sub>2</sub>N<sub>2</sub> in ether which on chromatography on Al<sub>2</sub>O<sub>3</sub>  
 gave 7.7 g. Me ifflaionate, m. 175°, [α]<sub>D</sub>20  
 59° (c 1.0, CHCl<sub>3</sub>). Refluxing the ester with 10% alc. KOH  
 for 3 hrs. gave pure II, m. 259-60°, [α]<sub>D</sub>20  
 88° (c 1.0, CHCl<sub>3</sub>). The crude alkaloid on repeated  
 chromatography on Al<sub>2</sub>O<sub>3</sub> gave I.H<sub>2</sub>O, C<sub>15</sub>H<sub>17</sub>O<sub>2</sub>N.H<sub>2</sub>O, m.  
 62-3°. Anhydrous I obtained by drying at 80°/1 mm. on  
 P<sub>2</sub>O<sub>5</sub> was a gum, [α]<sub>D</sub>25589 -0.6 and [α]<sub>D</sub>25420  
 -3.6° (c 8.0, MeOH); picrate m. 207-9°. I was a  
 weak base, formed no quaternary salts, had one methylimino group,  
 a terminal Me group, and no OMe groups. It could not be  
 hydrogenated at room temperature in HOAc or in presence of HClO<sub>4</sub> and Pt.  
 The ultraviolet and infrared spectra showed it to be a  
 2-alkoxy-4-quinolone, unlike all other alkaloids isolated from  
 Flindersia spp. which are 4-alkoxy-2-quinolones. The ultraviolet  
 spectrum in EtOH (neutral or alkaline) showed λ<sub>maximum</sub> 215, 236,  
 251 (shoulder), 298 (inflection), 309, 320 mμ, log ε  
 4.51, 4.39, 4.18, 3.91, 4.05, and 4.01; λ<sub>min</sub>. 265 mμ,  
 log ε 3.30; in 0.2N acid solution there was a hypsochromic  
 shift in long wavelength bands while intensities increased at both  
 short and long wavelength regions: λ<sub>maximum</sub> 216, 235, 294, 315  
 (inflection) mμ, log ε 4.52, 4.59, 4.10, 3.83.  
 However, in cyclohexane there was a bathochromic shift and

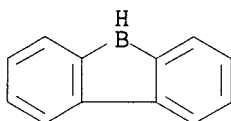
decrease in intensities:  $\lambda_{\text{maximum}}$  236 (shoulder), 251, 261, 275, 288 (inflection), 305 (inflection), 315, 326  $\mu$ ,  $\log \epsilon$  4.25, 4.10, 4.19, 3.52, 3.48, 3.81, 3.96, and 3.87. Infrared spectrum showed  $\nu$  1504, 1538, 1597, and 1623  $\text{cm}^{-1}$  in Nujol and 1508, 1541, 1585, and 1617  $\text{cm}^{-1}$  in  $\text{CHCl}_3$ . Structure was suggested I for ifflaiamine. A solution of 1 g. I and 10 g. KOH in 100 ml. EtOH was refluxed for 30 hrs., diluted with 100 ml.  $\text{H}_2\text{O}$ , concentrated to 100 ml., and extracted with  $\text{CHCl}_3$  to give 0.15 g. I. The aqueous solution was saturated with  $\text{CO}_2$  and extracted with  $\text{CHCl}_3$  to give 0.75

g.

of a phenol which was purified by sublimation at  $180-90^\circ/0.3$  mm. and crystallization to give pure IV, m.  $220-2^\circ$ ,  $\lambda$  (EtOH) 224, 241 (shoulder), 259 (shoulder), 290 (shoulder), 315  $\mu$ ,  $\log \epsilon$  4.55, 4.40, 3.89, 3.74, 3.97;  $\lambda_{\text{maximum}}$  (in N NaOH in EtOH) 234, 241 (shoulder), 256 (shoulder), 265 (shoulder), 314  $\mu$ ,  $\log \epsilon$  4.29, 4.23, 4.03, 3.78, 4.04;  $\lambda_{\text{maximum}}$  (in N HCl in EtOH) 232, 281, 289, 308 (shoulder), 318, 331 (shoulder)  $\mu$ ,  $\log \epsilon$  4.55, 3.83, 3.85, 3.70, 3.79, 3.64;  $\nu_{\text{maximum}}$  1513, 1585, 1613, 1642  $\text{cm}^{-1}$  (Nujol). A solution of 0.3 g. IV in 30 ml. 6N HCl was refluxed for 24 hrs., diluted with 60 ml.  $\text{H}_2\text{O}$ , and extracted with  $\text{CHCl}_3$  to give 0.2 g. gum,  $\nu_{\text{maximum}}$  1499, 1570, 1592, 1623, and 1657  $\text{cm}^{-1}$  with weak bands in the region 1500-1600  $\text{cm}^{-1}$ . The more basic aqueous fraction gave I. The spectral properties of the gum indicated the presence of V. Due to the unusual structure of I its synthesis was attempted. A mixture of 10.7 g. methylaniline and 48 g. malonic ester was refluxed so that EtOH formed escaped freely through the air condenser. After cooling, the mixture was diluted with petr. ether, filtered, the solid dissolved in 300 ml. 3% NaOH, the solution treated with charcoal and filtered, the filtrate acidified, and the solid separated. The solid was stirred with 200 ml. boiling EtOH, cooled and insol. material collected. The filtrate was evaporated to dryness, and the residue extracted with 300 ml. 3N HCl, and treated with NaOAc to give a precipitate of 2.6 g. 1-methyl-4-hydroxy-2-quinolone (VI), m.  $267^\circ$ . The sparingly soluble substance gave 5.5 g. VII, m.  $255-6^\circ$ ,  $\lambda_{\text{maximum}}$  (EtOH) 242, 255, 270, 350, and 365  $\mu$ ,  $\log \epsilon$  4.42, 4.29, 3.95, 3.73, 3.88, 3.91, 3.94, and 3.91. Under milder conditions, i.e. when a solution of 10.7 g. methylaniline and 17.6 g. malonic ester in 50 ml.  $\text{Ph}_2\text{O}$  was refluxed for 1 hr. and worked up as above it gave 1.7 g. VI and 7 g. VII. A mixt. of 1.7 g. VI and 10 g. malonic ester was refluxed 1.5 hrs. to give 1.9 g. VII. A solution of 3 g. VII in 20 ml.  $\text{H}_2\text{O}$  and 20 ml.  $\text{H}_2\text{SO}_4$  on refluxing for 1 hr. gave a quant. yield of VI. A mixture of 9.39 g. aniline and 100 g. malonic ester was heated in an open flask. At  $165^\circ$  EtOH started evolving. The temperature was raised to  $200^\circ$  during 0.5 hr. and maintained for 0.5 hr. more. The unreacted ester was distilled as much as possible and residue diluted with 2 vols. benzene. The solution on keeping deposited 2.1 g. malonanilide, whereas the mother liquor gave half-ester anilide. The half-ester anilide (7 g.) was added to boiling 100 ml.  $\text{Ph}_2\text{O}$ , and after 5 min. diluted with petr. ether to give 3 g. malonanilide. The half-ester anilide (2 g.) was heated with 20 g. polyphosphoric acid at  $170^\circ$  for 0.5 hr. Worked up as for VI, the reaction mixture gave 1 g. 4-hydroxy-2-quinolone (VIII), m.  $350-2^\circ$ . As in the case of VI, refluxing a mixture of 0.3 g. VIII and 30 g. malonic ester for 1.7 hrs. gave IX, m.  $315^\circ$ . On boiling with  $\text{H}_2\text{SO}_4$  IX gave VIII. Similar methods when applied to the synthesis of 3-acetonyl-4-hydroxy-2-quinolones gave only tars. Di-Me phenacylmalonate (X) (2.5 g.), b.p.  $164^\circ$ , m.  $76^\circ$ , and 0.9 g. aniline in 10 ml.  $\text{Ph}_2\text{O}$  was

heated in an open flask at 210° for 0.5 hr. to give 0.2 g. phenacylmalonilide, m. 210°, and 0.7 g. Me phenacylmalonanilate, m. 125-6°. Heating 1.7 g. half ester anilide with 25 g. polyphosphoric acid at 140-50° for 10 min. gave 0.6 g.  $\beta$ -benzoylpropionanilide, m. 150°, the possible mechanism for the formation of which is discussed. It was also obtained by heating 0.2 g. aniline with 0.35 g.  $\gamma$ -phenylcrotonolactone at 180-90° for 10 min.

IT 244-33-7, 5H-Dibenzoborole  
(preparation of)  
RN 244-33-7 HCAPLUS  
CN 5H-Dibenzoborole (7CI, 8CI, 9CI) (CA INDEX NAME)



CC 41 (Alkaloids)  
IT 86-95-3, Carbostyryl, 4-hydroxy- 244-33-7,  
5H-Dibenzoborole 1677-46-9, Carbostyryl, 4-hydroxy-1-methyl-  
6805-19-2, Ifflaionic acid 17649-94-4, Propionanilide,  
3-benzoyl- 18706-63-3, 3-Quinolineacrylic acid,  
1,2-dihydro- $\beta$ ,4-dihydroxy-1-methyl-2-oxo-,  $\delta$ -lactone  
31520-89-5, Furo[3,2-c]quinolin-4(2H)-one, 3,5-dihydro-2,3,3,5-  
tetramethyl- 31520-96-4, Ifflaiamine, picrate 93407-59-1,  
2-Thiophenebutyramide, N-[3,4-(methylenedioxy)phenethyl]-  
94091-83-5, Carbostyryl, 4-hydroxy-3-(2-hydroxy-1,1-  
dimethylpropyl)-1-methyl- 94891-68-6, 3-Quinolineacrylic acid,  
1,2-dihydro- $\beta$ ,4-dihydroxy-2-oxo-,  $\delta$ -lactone  
95168-61-9, Malonanilic acid, 2-phenacyl-, methyl ester  
100734-76-7, Malonanilide, 2-phenacyl-  
(preparation of)

L12 ANSWER 73 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

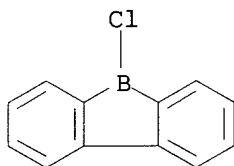
ACCESSION NUMBER: 1963:441771 HCAPLUS  
DOCUMENT NUMBER: 59:41771  
ORIGINAL REFERENCE NO.: 59:7547d-g  
TITLE: 9-Borafluorenes  
AUTHOR(S): Koester, R.; Benedikt, G.  
CORPORATE SOURCE: Max-PlanckInst., Muelheim/Ruhr, Germany  
SOURCE: Angew. Chem. (1963), 75, 419  
DOCUMENT TYPE: Journal  
LANGUAGE: Unavailable

GI For diagram(s), see printed CA Issue.

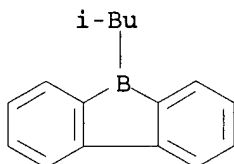
AB 2-Biphenylyldialkylboranes, preparable from 2-lithiobiphenyl (I) and dialkylchloroboranes, split out alkane at 180-200° to give a 9-alkyl-9-borafluorene (II). The following II were prepared [R, b.p./mm., m.p., % yield,  $\nu$  (cm.<sup>-1</sup> given): Et, 112°/0.3, 16°, 65, 25,800; Pr and iso-Pr (mixture), 130°/0.2, 5°, 42, -, iso-Bu, 140°/0.2, 13.5°, 40, -; Ph (temperature of 280 300° required), 180°/0.4, 118°, 56, 24,700. All I were intensely yellow, which was attributable to a disturbance of the system by the B atom. From II (R = alkyl or aryl) and BCl<sub>3</sub> in the presence of BH compds. was prepared II (R = Cl), yellow, b<sub>0.1</sub> 110°, m. 52°,  $\nu$  25,200 cm.<sup>-1</sup>, along with RBCl<sub>2</sub> (R = alkyl or aryl). II formed colorless

etherates; the di-Et etherate dissociated on melting (82°). Treatment of Na+(BEt<sub>3</sub>H) and II (R = Cl) in hexane gave bis(9-borafluorene), colorless,  $\nu$  1545 cm.<sup>-1</sup>, which dissociated on heating (80°) in C<sub>6</sub>H<sub>6</sub> to give II (R = H), yellow,  $\nu$  2500 cm.<sup>-1</sup> 9-Alkyl- or 9-aryl-9-borafluorenes on treatment with AlEt<sub>3</sub> gave BEt<sub>3</sub> and dimeric 9-alkyl or 9-aryl-9-aluminafluorenes. Pyrolysis of I and dialkyl- or diarylchloroboranes (mole ratio: 2:1) gave III.

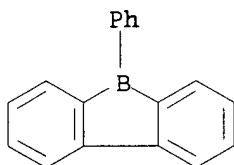
IT 13059-59-1, 5H-Dibenzoborole, 5-chloro- 14010-92-5  
 , 5H-Dibenzoborole, 5-isobutyl- 14010-93-6,  
 5H-Dibenzoborole, 5-phenyl- 14855-16-4,  
 5H-Dibenzoborole, 5-ethyl- 89306-12-7, 5H-Dibenzoborole,  
 dimer 108479-75-0, Lithium bis(2,2'-biphenylene)borate  
 (preparation of)  
 RN 13059-59-1 HCAPLUS  
 CN 5H-Dibenzoborole, 5-chloro- (7CI, 8CI, 9CI) (CA INDEX NAME)



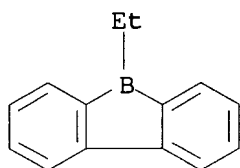
RN 14010-92-5 HCAPLUS  
 CN 5H-Dibenzoborole, 5-isobutyl- (7CI, 8CI) (CA INDEX NAME)



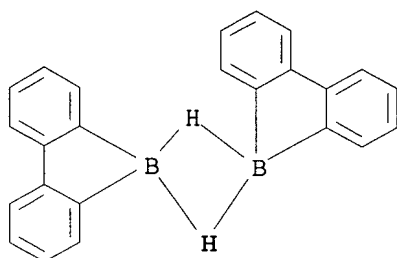
RN 14010-93-6 HCAPLUS  
 CN 5H-Dibenzoborole, 5-phenyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



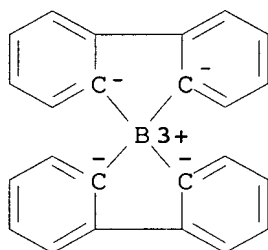
RN 14855-16-4 HCAPLUS  
 CN 5H-Dibenzoborole, 5-ethyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 89306-12-7 HCAPLUS  
 CN 5H-Dibenzoborole, dimer (7CI) (CA INDEX NAME)



RN 108479-75-0 HCAPLUS  
 CN Borate(1-), bis([1,1'-biphenyl]-2,2'-diyl)-, lithium, (T-4)- (9CI)  
 (CA INDEX NAME)



● Li<sup>+</sup>

CC 39 (Organometallic and Organometalloidal Compounds)  
 IT 13059-59-1, 5H-Dibenzoborole, 5-chloro- 14010-92-5  
 , 5H-Dibenzoborole, 5-isobutyl- 14010-93-6,  
 5H-Dibenzoborole, 5-phenyl- 14855-16-4,  
 5H-Dibenzoborole, 5-ethyl- 35256-13-4, Titanium,  
 ethoxybis(8-quinolinolato)cyclopentadienyl- 89306-12-7,  
 5H-Dibenzoborole, dimer 108479-75-0, Lithium  
 bis(2,2'-biphenylene)borate  
 (preparation of)

L12 ANSWER 74 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1963:14974 HCAPLUS  
 DOCUMENT NUMBER: 58:14974  
 ORIGINAL REFERENCE NO.: 58:2469h,2470a  
 TITLE: Synthesis of (bisbiphenylene)arylsoranes

from spirobisbiphenylene arsonium salts

AUTHOR(S): Wittig, G.; Hellwinkel, D.  
 CORPORATE SOURCE: Univ. Heidelberg, Germany  
 SOURCE: Angew. Chem. (1962), 74, 782  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Unavailable

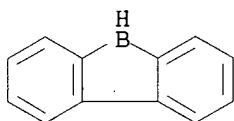
GI For diagram(s), see printed CA Issue.

AB Biphenylene-o-biphenylyldichloroarsorane (I) or bis-o-biphenylyltrichloroarsorane split off HCl at 250° to produce in good yield spiro(bisbiphenylene)arsonium chloride, m. 319°, with isomerization to biphenylene-2-(2'-chlorodiphenyl)arsine. Other salts prepared were the iodide, m. 309-11°, the tetraphenylborate, m. 257.5-9.5°, and the bisbiphenylene borate, m. 290-1°. Reaction of these salts with PhLi or p-Me<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>Li produced bisbiphenylenearylsoranes in good yield.

IT 244-33-7, 5H-Dibenzoborole (spiro derivative)

RN 244-33-7 HCAPLUS

CN 5H-Dibenzoborole (7CI, 8CI, 9CI) (CA INDEX NAME)



CC 39 (Organometallic and Organometalloidal Compounds)

IT 244-33-7, 5H-Dibenzoborole (spiro derivative)

L12 ANSWER 75 OF 77 HCAPLUS COPYRIGHT 2006 ACS on STN

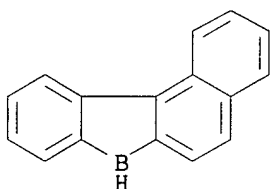
ACCESSION NUMBER: 1962:416985 HCAPLUS  
 DOCUMENT NUMBER: 57:16985  
 ORIGINAL REFERENCE NO.: 57:3464e-h  
 TITLE: Optically active organic boron compounds. IV. Preparation of a quadrivalent borospiro  
 AUTHOR(S): Torssell, Kurt  
 CORPORATE SOURCE: Univ. Stockholm  
 SOURCE: Acta Chem. Scand. (1962), 16, 87-93  
 DOCUMENT TYPE: Journal  
 LANGUAGE: German

GI For diagram(s), see printed CA Issue.

AB cf. CA 49, 10214c. The asym. borospiroans (I) and (II) were prepared as MePrPh(PhCH<sub>2</sub>)N<sup>+</sup> salts. 1-(2-Bromophenyl)-2-bromonaphthalene (III) is prepared by diazotizing 8.5 g. 1-(2-aminophenyl)-2-naphthylamine. A Hg complex of the diazonium salt is formed by adding Hg NO<sub>3</sub>)<sub>2</sub> and KBr (Schwechten, CA 27, 69) yielding on decomposition and distillation 4 g. III, b<sub>2</sub> 203-4°. 1-(2-Iodophenyl)-2-iodonaphthalene (2 g.) (Cava and Stucker, CA 50, 8579a) dissolved in 15 mL. Et<sub>2</sub>O is treated with 9 mL. N BuLi at -30 to -40° and then with 0.43 g. BF<sub>3</sub>.Et<sub>2</sub>O in 5 mL. Et<sub>2</sub>O. After evaporating Et<sub>2</sub>O and adding EtOH (30 mL.), 0.8 g. methylpropylbenzylphenylammonium α-bromo-d-camphor-π-sulfonate (IV) (Wedekind and Froehlich, Ber. 38, 3438 (1905)) is added causing a precipitation of 0.1 g. I, m. 203-4° (MeNO<sub>2</sub>), [α]<sub>D</sub> -91°. II is prepared from 2-[4,2-Me(Br-Mg)C<sub>6</sub>H<sub>3</sub>O]C<sub>6</sub>H<sub>4</sub>MgBr (Campbell, CA 41, 3469f) and BF<sub>3</sub>.Et<sub>2</sub>O in THF.

Addition of IV in EtOH solution causes precipitation of II, m. 187-91° (MeNO<sub>2</sub>-EtOH), [α]<sub>D</sub> -42°. MePrPh(PhCH<sub>2</sub>)NI (V), [α]<sub>D</sub> -69°, is prepared by reaction of IV with LiI in Me<sub>2</sub>CO, m. about 160° (decomposition). mMeC<sub>6</sub>H<sub>4</sub>(p-ClC<sub>6</sub>H<sub>4</sub>)BOPr (VI), b<sub>8</sub> 172-4°, is obtained in 71% yield by treating m-MeC<sub>6</sub>H<sub>4</sub>B(OPr)<sub>2</sub> with p-ClC<sub>6</sub>H<sub>4</sub>MgBr in Et<sub>2</sub>O at -60°. After hydrolyzing with chilled dilute H<sub>2</sub>SO<sub>4</sub> VI is extracted with Et<sub>2</sub>O and distilled

IT 205-10-7, 7H-Benzo[b]naphtho[1,2-d]borole  
(spiro derivative)  
RN 205-10-7 HCAPLUS  
CN 7H-Benzo[b]naphtho[1,2-d]borole (8CI, 9CI) (CA INDEX NAME)



CC 33 (Organometallic and Organometalloidal Compounds)

IT 205-10-7, 7H-Benzo[b]naphtho[1,2-d]borole  
(spiro derivative)

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ACCESSION NUMBER: 1962:66979 HCAPLUS

DOCUMENT NUMBER: 56:66979

ORIGINAL REFERENCE NO.: 56:12918d-e

TITLE: Aminoditolylborane and the preparation of diarylborinic acids

AUTHOR(S): Coates, G. E.; Livingstone, J. G.

CORPORATE SOURCE: Durham Coll., UK

SOURCE: Journal of the Chemical Society (1961) 4909-11  
CODEN: JCSOA9; ISSN: 0368-1769

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

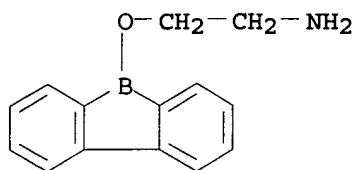
AB The following route to diarylborinic acids was investigated: BCl<sub>3</sub> + Ph<sub>2</sub>NH → Cl<sub>2</sub>BNPh<sub>2</sub> (I). I + ArMgX → Ar<sub>2</sub>BNPh<sub>2</sub> (II). II + H<sub>2</sub>O + H<sub>2</sub>NCH<sub>2</sub>CH<sub>2</sub>OH → Ar<sub>2</sub>BOCH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub> (III). III + HCl → Ar<sub>2</sub>BOH. Only a slight excess of Grignard reagent is used, making this procedure more economical than present ones. The yields of III are in the range of 51-93% and there is no contamination by boronic acids. The following new acids and their 2-aminoethyl esters were prepared (R in R<sub>2</sub>BOR'); o-MeOC<sub>6</sub>H<sub>4</sub>, m.p. of ester 164-5°; PhC.tplbond.C, m.p. of ester 172-4°, of acid 98-100°; 3,4-Me<sub>2</sub>C<sub>6</sub>H<sub>3</sub>, m.p. of ester 204-6°.

IT 97176-42-6, Ethylamine, 2-[(5H-dibenzoborol-5-yl)oxy]-  
(preparation of)

RN 97176-42-6 HCAPLUS

CN Ethylamine, 2-[(5H-dibenzoborol-5-yl)oxy]- (7CI) (CA INDEX NAME)





CC 33 (Organometallic and Organometalloidal Compounds)  
 IT 524-95-8, Borinic acid, diphenyl-, 2-aminoethyl ester 2622-89-1,  
 Borinic acid, diphenyl- 6962-82-9, Borinic acid,  
 bis(p-bromophenyl)-, 2-aminoethyl ester 6962-88-5, Borinic acid,  
 di-1-naphthyl-, 2-aminoethyl ester 13025-77-9, Borane,  
 aminodi-o-tolyl- 19565-45-8, Borinic acid, di-p-tolyl-,  
 2-aminoethyl ester 61733-90-2, Borinic acid,  
 bis(p-chlorophenyl)-, 2-aminoethyl ester 62981-91-3, Borinic  
 acid, di-1-naphthyl- 66117-64-4, Borinic acid, di-p-tolyl-  
 73774-44-4, Borinic acid, di-o-tolyl- 75018-24-5, Borane,  
 aminodimesityl- 89566-59-6, Borinic acid, bis(p-chlorophenyl)-  
 96484-29-6, Borinic acid, bis(p-bromophenyl)- 97176-42-6  
 , Ethylamine, 2-[(5H-dibenzoborol-5-yl)oxy]- 97176-42-6,  
 5H-Dibenzoborole, 5-2-aminoethoxy)- 97339-50-9, Borinic acid,  
 bis(phenylethynyl)- 97881-32-8, Borinic acid, di-o-tolyl-,  
 2-aminoethyl ester 97979-12-9, Borinic acid,  
 bis(o-methoxyphenyl)-, 2-aminoethyl ester 98693-26-6, Borinic  
 acid, bis(phenylethynyl)-, 2-aminoethyl ester 99269-70-2,  
 Borinic acid, di-3,4-xylyl-, 2-aminoethyl ester 102032-41-7,  
 Borinic acid, bis(4-biphenyl)-, 2-aminoethyl ester  
 (preparation of)

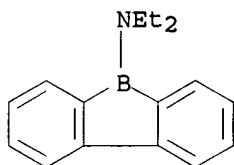
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ACCESSION NUMBER: 1960:44693 HCAPLUS  
 DOCUMENT NUMBER: 54:44693  
 ORIGINAL REFERENCE NO.: 54:8842f-i,8843a-c  
 TITLE: Synthesis and structure of aromatic boron  
 compounds  
 AUTHOR(S): Davidson, J. M.; French, C. M.  
 CORPORATE SOURCE: Queen Mary Coll., London  
 SOURCE: Journal of the Chemical Society (1960) 191-5  
 CODEN: JCSOA9; ISSN: 0368-1769  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Unavailable

AB 10-Hydroxy-9-oxa-10-boraanthracene (I) was prepared and its aromatic  
 character demonstrated by ultraviolet spectroscopy. The mechanism  
 of the reaction of Bu metaborate (II) with Grignard and Li  
 reagents was investigated and the conditions under which organic  
 boronous or boronic acid was the predominant product were examined  
 An attempt to prepare 9-diethylamino-9-borafluorene was also  
 described. PhMgBr (from 15.7 g. PhBr) in 50 ml. Et2O treated  
 dropwise under reflux with 10 g. phenylboronic anhydride (III) in  
 75 ml. C6H6, refluxed a further 0.5 hr., the mixture hydrolyzed with  
 200 ml. 15% HCl, the solvents removed, 20 ml. ligroine added, and  
 the mixture filtered gave 3.5 g. III, m. 214°. Removal of  
 the solvent from the filtrate gave 11.5 g. diphenylboronous acid  
 (IV), n20D 1.5907. IV with HOCH2CH2NH2 formed 65% 2-aminoethyl  
 diphenylboronite, m. 187°. 2-Biphenylphenylboronous acid  
 (V) was similarly prepared from 7.5 g. III and 1 mole  
 2-biphenylmagnesium iodide in Et2O, after hydrolysis,  
 ethanolamine added, and crystallized to give 10.2 g.

2-aminoethyl-2-biphenyl phenylboronite (VI), m. 175° (alc.). VI (3 g.) shaken with 30 ml. Et2O and 30 ml. 10% HCl gave 2.55 g. V, viscous liquid. Mg (0.7 g.) reacted readily with 7.5 g. 2-iododiphenyl ether and 3 g. II in 60 ml. Et2O after addition of iodine; after 10 min. of spontaneous refluxing and 0.5 hr. of heating the mixture was hydrolyzed with 100 ml. 15% HCl, the acid products extracted with 5% NaOH, and the basic extract acidified to give 1.5 g. o-phenoxyphenylboronic acid, m. 114° (C6H6-cyclohexane). 9-Bromophenanthrene (5 g.) and 2.5 g. II gave 2.45 g. 9-phenanthrylboronic acid, m. 324° (H2O). 2,2'-Dilithiodiphenyl ether in 156 ml. Et2O treated during 10 min. with 6.7 g. II in 25 ml. Et2O, the solution refluxed 2 hrs., and hydrolyzed with 100 ml. 10% HCl gave 5.9 g. 10-hydroxy-9-oxa-10-boraanthracene (VII), m. 285° (C6H6-cyclohexane). The same solution of 2,2'-dilithiodiphenyl ether (600 ml.) and 200 ml. ether solution containing 37 g. BF3-Et2O simultaneously added to 100 ml. Et2O under N during 45 min. and the mixture refluxed 1 hr. gave 11.1 g. VII. 2-Biphenylmagnesium iodide (from 10 g. 2-iodobiphenyl) in 50 ml. Et2O treated rapidly with 3.5 g. II in 15 ml. Et2O, and the solution refluxed 0.5 hr. gave 5 g. 2-biphenylboronic acid (VIII), m. 121-3° (H2O), resolidified to the anhydride, m. 195°. VIII (3.9 g.) esterified with alc. by azeotropic distillation gave 3.4 g. di-Et ester, b4 136-8°, n20D 1.5444. Di-Bu 2-biphenylboronate (IX) was prepared by direct esterification of the Grignard reaction mixture after hydrolysis. 2-Iodobiphenyl (26.5 g.) and 8.8 g. II afforded 13.3 g. IX, b0.6 149-51°, n20D 1.5310. IX (7.5 g.) heated 18 hrs. at 140° with 11 g. PCl5 gave 4.35 g. 2-biphenylboron dichloride, b0.25 95-6°, n20D 1.5661. 2,2'-Dilithiobiphenyl (from 4 g. 2,2'-diiodobiphenyl) in 60 ml. Et2O slowly treated with 0.9 g. II in 15 ml. Et2O under N, the solution refluxed 15 min., hydrolyzed with dilute NH4Cl, and the solution azeotropically distilled with HOCH2CH2NH2 and PhMe gave 1.3 g. bis(2-aminoethyl)2-biphenyl boronate, m. 134° (C6H6). A sample was hydrolyzed with dilute HCl to the acid which was dried to form the anhydride, m. 206° (cyclohexane).

IT 97322-63-9, 5H-Dibenzoborole, 5-diethylamino-  
(attempted preparation of)  
RN 97322-63-9 HCAPLUS  
CN 5H-Dibenzoborol-5-amine, N,N-diethyl- (9CI) (CA INDEX NAME)



CC 10G (Organic Chemistry: Heterocyclic Compounds)  
IT 97322-63-9, 5H-Dibenzoborole, 5-diethylamino-  
(attempted preparation of)